

Patient Movement in the Pacific Theater 1

"Where Have All the Patients Gone?"

A Critical Review of Case Management and Air Evacuation in the
Pacific Theater

John C. Olsen, M.D.

US Army-Baylor University Graduate Program in Healthcare
Administration

Report Documentation Page		
Report Date 20 Jan 2000	Report Type N/A	Dates Covered (from... to) -
Title and Subtitle Where Have all the Patients Gone? A Critical Review of Case Management and Air Evacuation in The Pacific Theater	Contract Number	
	Grant Number	
	Program Element Number	
Author(s)	Project Number	
	Task Number	
	Work Unit Number	
Performing Organization Name(s) and Address(es) TRICARE Pacific Lead Agency 1 Jarrett White Road Tripler Army Medical Center Honolulu, HI 96859-5000	Performing Organization Report Number 8-00	
Sponsoring/Monitoring Agency Name(s) and Address(es)	Sponsor/Monitor's Acronym(s)	
	Sponsor/Monitor's Report Number(s)	
Distribution/Availability Statement Approved for public release, distribution unlimited		
Supplementary Notes The original document contains color images.		
Abstract		
Subject Terms		
Report Classification unclassified	Classification of this page unclassified	
Classification of Abstract unclassified	Limitation of Abstract UU	
Number of Pages 128		

Acknowledgements

Mr. Robert Hengel, Director - Information Management at TRICARE Pacific Lead Agency, whose technical knowledge of Microsoft Access and its web-based application brought this project to completion in a timely manner while saving the US Government hundreds of thousands of dollars in contractor's fees.

Colonel Lenore Enzel, Chief Utilization Management and Quality Management at TRICARE Pacific Lead Agency, whose energy and insight was always available and optimistic.

Mr. Robert Barnes, Health Systems Specialist at TRICARE Pacific Lead Agency, whose willingness, experience and insight in working with database collection and collation proved instrumental in developing the Pacific Case Management Database.

Captain Rick Welton, Executive Director at TRICARE Pacific Lead Agency, whose steady hand and mentoring was invaluable in tempering passion with practicality.

Elizabeth Olsen, my wife, my confidant and editor-in-chief.

Executive Summary

The United States military healthcare system reaches across thousands of miles to serve patients in the Pacific Theater. Even so, many patients must travel great distances to treatment. Until the Department of Defense implemented managed care for its beneficiaries, the Medical Treatment Facilities acted independently. Their autonomous decision-making fostered little information exchange regarding patient travel or best practices. Patients and the tracking systems soon became disconnected. Treatment trends couldn't be analyzed and the sheer cost of transport was unnecessarily high.

In an effort to create an efficient system for managing the movement of patients throughout the Pacific Theater, this research takes on the challenge of uniting 14 Medical Treatment Facilities under a single case management system and database. The existing patient tracking systems were unable to follow patients through the treatment process, and are incapable of performing simple analysis that would help the TRICARE Pacific Lead Agency make strategic decisions about patient care. This paper outlines an Internet-based solution: the *Pacific Case Management Database*.

The paper also includes a business case analysis of aeromedical evacuation that concludes patient transport in

peacetime is neither efficient nor appropriate as a readiness tool and, in fact, delays treatment - which should be as unacceptable in peacetime as it is in war. This financial analysis points to significant improvements that will reduce patient delays, improve tracking systems, enhance access to and quality of healthcare, and save millions of dollars.

This research is a first step in addressing important quality of life issues and the perception of TRICARE for patients who must travel thousands of miles for healthcare treatment.

Table of Contents

Acknowledgements	2
Executive Summary	3
Table of Contents	5
List of Tabs	8
List of Tables	9
List of Figures	10
Background	11
Introduction: Managed Care in the Pacific Theater	14
Conditions That Prompted the Study	17
Useless and Cumbersome Databases	18
Air Evacuation is Unnecessarily Time Intensive	20
Leadership Needed for Case Management	20
Problem Statement	21
Literature Review	
Utilization Management	22
Case Management	26
Air Evacuation Mission Guidance	29
Pacific Theater AIREVAC Responsibilities	32

Hypothesis	37
Purpose	37
Methods and Procedures	40
Interviews, Database Collection and Collation	41
Discussion of Findings and Analyses	43
The Research Questionnaire and Stakeholder Interviews	44
The Medical Landscape at Origin	45
The Medical Landscape at Destination	46
Evaluating the Defense Medical	
Regulating Information System	47
Flattening the Databases	49
Moving Patients Through The Air Evacuation Process	51
Redefining the Pacific Case Management Process	53
The Business Case Analysis of Patient Movement	54
General Assumptions	55
Patient Travel Costs in Dollars	57
Patient Travel Costs in Hours	59
Individual Patient Travel Costs Worksheet	61
Annualized Theater-Wide Patient Travel Costs Worksheet	62

Changes in Medical Processes of the Air Evacuation Process	63
Illustrating the Redefined Case Management Process	63
Changes at the TRICARE Pacific Lead Agency	66
Changes at the Medical Treatment Facility	67
The Pacific Case Management Database	68
Suggestions for Improving Patient Air Transport	69
Strategic Issues	71
Conclusions	73
Reference List	78

Patient Movement in the Pacific Theater 8

List of Tabs

- Tab A: Sample Copy of the Defense Medical Regulating Information System Record
- Tab B: The Research Questionnaire Summary
- Tab C: The Air Evacuation System Data Comparisons
- Tab D: The Pacific Case Management Database and Explanations
- Tab E: The Pacific Case Management Database Web Site

List of Tables

Table 1: Patient Travel Costs in Dollars (Cost)

Table 2: Patient Travel Costs in Hours (Access)

Table 3: Individual Patient Travel Costs Worksheet

Table 4: Annualized Theater-Wide Patient Travel Costs

List of Figures

Figure 1: The Referring Medical Facility

Figure 2: The Accepting Medical Facility

Figure 3: The Accepting Medical Service

Figure 4: The Beneficiary Category of Patient

Figure 5: Illustration of the Pacific Theater Case

Management Network Process:

Lines of Accountability and Communication

"Where Have All the Patients Gone?"

**A Critical Review of Case Management and Air Evacuation
in the Pacific Theater**

Background

In July 1999, the U. S. Commander-in-Chief Pacific (USCINCPAC) convened a group of his senior medical and Air Force advisors to discuss the peacetime movement of patients throughout the Pacific Theater and to the continental United States (CONUS). The discussions focused on the processes involved in aeromedical evacuation. The attendees took away the need to critically review the way they performed the mission of moving patients intra- and inter-theater. This would not be an unemotional, sterile review of *just another process*. It had the face of a very sick patient, Heather Lynch, across the front of it.

Heather Lynch, a 19-year-old Navy Seaman, came to the Navy Branch Medical Clinic in Diego Garcia on the 12th of April, 1999, with a typical presentation of Viral Influenza. In less than 24 hours, her condition escalated to a life-threatening condition of Adult Respiratory Distress Syndrome. Shortly after her initial presentation at the clinic her lungs began to fill with

fluid, threatening suffocation. She was drowning in her own lung secretions. This syndrome - first defined as "Danang Lung" or shock lung in the Vietnam War - carries high mortality. The successful treatment of Adult Respiratory Distress Syndrome requires weeks of intensive care nursing, artificial ventilation and monitoring of life's basic processes like heart rhythm, breathing, and urine output. Heather had to be evacuated.

In the center of the Indian Ocean, she was thousands of miles from the nearest appropriate medical center. In addition, the case management network was not engaged to coordinate her travel through the Air Evacuation System (AES).

Her first movement was late the night of April 13th, barely 26 hours after she first complained of symptoms. On her 6-hour trip aboard a Naval P-3 Aircraft to Singapore, she required escalating doses of life-sustaining medications and artificial ventilation by a nurse-physician team travelling with her. After her safe arrival and two-week resuscitation at Mount Elizabeth's Hospital in Singapore, numerous aircraft mechanical failures and delays complicated her transfer back to Hawaii. While she escaped death, over the next several weeks she suffered kidney failure, coma and multiple amputations of her limbs.

Once Heather stabilized and her recovery was assured, she

had to be transported from Honolulu back to Washington, D.C., for long term rehabilitation and a medical board near her home. On her departure date from Honolulu, her Air Evacuation (AIREVAC) flight was again cancelled because of mechanical failure on the C141 Air Force aircraft. Her case was well known throughout the Pacific Theater because of her remarkable two-month journey from almost certain death to recovery. As a result, the grounded C141 did not delay her final trip home. Instead, she traveled with her mother and support personnel, accompanying USCINCPAC who was fortuitously traveling to Washington, D.C., that same day.

The medical leadership and Air Force generals responsible for the AIREVAC system left the July meeting with Heather's story on their minds. Here was a case that illuminated the need for better case management and reliable air transport, but more importantly, it elevated the issue of patient care priority over other logistic material transport to USCINCPAC.

As fathers and mothers, as husbands and wives, and as leaders who value the lives of their troops above all, the military leaders left the room with many questions about an AIREVAC system that takes care of 400,000 beneficiaries. Analyses, and perhaps changes, were imminent.

Introduction: Managed Care in the Pacific Theater

The US Pacific Command's Area of Responsibility includes: over one hundred and six thousand square miles that extends from Alaska and the West Coast to Madagascar, including more than 50 countries whose populaces speak greater than 100 unique languages and dialects. This region is origin to 70% of the world's natural disasters and home to 400,000 U.S. active duty forces, their families, retirees and other U.S. personnel. It is also TRICARE Pacific's managed care environment.

Managed care is a balancing act between delivering cost-efficient, easily accessed and high quality healthcare (Kongstvedt, P. 1997). Although they have evolved throughout the last 20 years, few perfect managed care systems exist. There are, however, certain factors making some managed care health plans more acceptable than others. The factors are pragmatic and have more to do with the environment than the plan itself:

- 1) A central, tertiary care medical center with near-by-feeder clinics, all of which are easily accessed by automobile or public transportation.
- 2) A heavily penetrated managed care environment that is metropolitan and has attractive environmental surroundings that attract employees.

- 3) A city that has a large, highly skilled healthcare workforce pool and maintains a business-friendly relationship with local employers, local government and the media.

This environment does exist in one, and only one, small part of the Pacific Theater: Hawaii. The remaining parts of the Pacific Theater, in all their uniqueness and cultural diversity, currently require four additional contracts to serve military families located in places as remote as Nepal, Burma and Sri Lanka. TRICARE Pacific's ability to ensure access to cost effective healthcare as close to the duty station as possible is tested on a daily basis by an ever more critical and savvy health consumer, various federal agencies, elected officials and the media. The Pacific geography makes it one of the most difficult places on earth to operate a managed care program.

One of the most important tools managed care brought to military medicine in the Pacific is the concept of case management. While it was originally developed to serve patients with complex medical conditions, in the Pacific it is an excellent tool to track patients between treatment centers that are thousands of miles apart. While case management is a simple matter in CONUS, in the Pacific Theater it is an orchestrated

system that requires databases, flight plans and specialized staff to track patient movement across oceans and time zones.

The Pacific is a challenging environment where medical care is often geographically separated from family support. The widely dispersed patient base, foreign cultures and diverse, endemic health challenges are just a few of the everyday realities facing USCINCPAC, his subordinate commanders and TRICARE Pacific. Consequently, this paper critically evaluates the case management system in the Pacific Theater, including the logistics of patient movement throughout the Western Pacific (WESTPAC). It examines the ways data are collected about patients, and whether that data can be manipulated to analyze movement and treatment patterns. Finally, it considers both the costs involved and the time it takes patients to travel great distances to treatment.

To that end, this analysis queried many different databases that tracked patient movement. These disparate systems, which tenuously stitch together an evolving *Pacific Case Management Network*, lacked coordinated oversight and the cohesion provided by a universal patient tracking database that captures data in a usable form. As a result, this research pioneered and fully developed a patient movement-tracking database in support of the Pacific Case Management Network.

Conditions That Prompted the Study

In most managed care settings on the U.S. mainland, the simple process of transporting patients to the healthcare facility is insignificant. Transportation, as a logistical concern in the delivery or accessing of medical care, seldom requires consideration except in rural settings (Donovan, M. & Matson, T. 1994). This is not true in WESTPAC where patients travel great distances to access healthcare, at considerable expense in time and dollars. In fact, the sheer inconvenience creates serious, albeit intangible, quality of life issues for the patient and the family.

In conventional managed care settings, case management is a niche of Utilization Management; used to coordinate care for medically complex patients (Rossi, P. 1999, Case Management Society of America 1999, Case Management Resource Guide 1998). Few U.S. personnel in WESTPAC are medically complex by standard textbook definitions - but military leaders and providers in WESTPAC agree that the remote and/or distant locations of U.S. forces provide a complicating factor in healthcare delivery few face in US mainland managed care settings. As a result, case management is carving a new, non-traditional role in the Pacific. The logistics of integrating WESTPAC patient healthcare

delivery with travel to access care are so complex, a case manager must track each patient through the system.

TRICARE Pacific, and WESTPAC Medical Treatment Facilities (MTFs), justify using case managers for coordinating healthcare delivery in WESTPAC because of the high cost and difficulty of patient transport. In designing the case management system, TRICARE Pacific felt confident that using case managers as coordinators of healthcare delivery and travel would enhance cost efficiencies and assure optimal access to the appropriate medical care as close to the duty station as possible, in spite of WESTPAC's time and distance challenges. However, as Heather Lynch and other cases soon illustrated, the condition of the MTF case management databases, and the patient's propensity to skirt the AES, prompted a thorough study before case managers could truly be effective.

Useless and Cumbersome Databases

The Defense Medical Regulating Information System, or DMRIS, is DOD's mandated patient tracking system in use throughout the Pacific Theater (DODINST 6000.11, 1998). It is an antiquated and proprietary software program that aggregates data, but does not permit statistical analysis without transferring the data to another statistical platform like

Microsoft *Excel*. Since DMRIS only aggregates data, MTF analysts must download and manipulate databases, which is beyond the capabilities of most MTF utilization management staff (Personal Communication, HMC Michael Damico 8-15-99).

There is also anecdotal evidence, which came to light during interviews with the case managers, that MTF personnel who work with DMRIS find its data is not useful for utilization management at the local level because it follows too few non-clinical parameters (TAB A). In short, there are two significant deficits: the data are purely clinical in nature and do not appropriately track patient movement to treatment centers. DMRIS loses track of patients during each episode of care; they become invisible to the system, to the case managers and to the command structure.

DMRIS Year 2000 (Y2K) compliance may also be questionable. The system recently lost several months of 1999 data during its Y2K assessment (Personal Communication, Major Randy Emmert 9-15-99). Finally, system queries require the proprietary program's developers to write the query - increasing cost, delay and obstruction to using DMRIS at the local and institutional level in WESTPAC MTFs.

Air Evacuation is Unnecessarily Time Intensive

Heather Lynch's story, as well as interviews with WESTPAC case managers, prompted a simultaneous study of the AES. Again, anecdotal evidence pointed to a cumbersome, if not outdated, system for managing routine patient air travel. Case managers and patients alike tried to avoid the AES. They described AES as an airline of infrequent flights with frequent stops, which turned a simple flight from Hawaii to Guam into a 3-day marathon. Table 2, discussed later in detail, shows that a commercial flight is always a better alternative.

Leadership Needed for Case Management

When this story began, case management at the 14 WESTPAC MTFs was difficult because it lacked cohesion both strategically and fundamentally. Until summer 1999 when the Lead Agency's Chief Case Manager position was filled, there was no dedicated strategic oversight of case management at TRICARE Pacific. Fundamentally, data collection was in disarray. Thirteen MTFs had some form of database, but only two were similar enough to be comparable. To be effective, Pacific case management had to be energized locally, supervised centrally and equipped with a suitable platform for data collection, deliberation and analysis.

Managed care organizations, like TRICARE Pacific, maintain a singular quest for consistency in delivering quality care, easy access, cost efficiency and achieving patient satisfaction. To achieve these goals, TRICARE Pacific had to exert program oversight at the strategic level and TRICARE Pacific patients had to be visible throughout the entire process of healthcare delivery. With the assignment of a senior Case Manager in summer 1999, oversight had a face at TRICARE Pacific, but patient visibility in the Pacific AES remained murky.

Problem Statement

The Defense Medical Regulating Information System is a poorly integrated and outdated software platform that cannot monitor the movement of patients in the Pacific and does not support the regional analysis of movement, treatment or other best business or clinical practices. DMRIS' lack of capability compelled most WESTPAC MTFs to develop parallel databases that captured more useful MTF specific data for tracking patient movement and local utilization management. While these stopgap database measures proved effective locally, the MTFs' widely divergent needs fostered the development of databases that provide no value to case managers and managed care outside the MTF, or to TRICARE Pacific.

Literature Review

Utilization Management

Utilization Management (UM) is an umbrella term that encompasses a number of more specific techniques and strategies often deployed in managed care. Strictly defined in 1995, UM is "the review of services delivered by a healthcare provider to determine whether according to pre-established standards, the services were medically necessary" (Meisenheimer, C. 1997, 150). As with many terms and concepts in managed care, UM continues to evolve in both definition and substance.

Today in MTFs and at TRICARE Pacific, UM is defined more broadly - in the context of many component processes in the military's healthcare delivery system. Previously focused on inpatient stays, UM now analyzes primary care services, specialty referrals, emergency and ancillary services and pharmacy benefits, to name a few. While each MTF uses various local techniques in implementing successful UM, there are four mainstream strategies which find their way into most healthcare plans: demand management, utilization review, disease management and case management (Academy for Healthcare Management and American Association of Health Plans, 1999).

Demand management in today's health plans provide patient education and ongoing provider intervention that reduces overall

requirements for healthcare services by the plan's members. This technique helps lower costs while providing members with additional value. Kongstvedt sites five categories of demand management services: nurse advice lines, self-care and medical consumerism, shared-decision making programs, medical informatics and preventive services and health risk appraisals (Kongstvedt 1997). TRICARE Pacific employs all five of these services.

The *Healthcare Information Line* (HCIL), part of the Pacific Healthcare Information Program (PHCIP), is a theater wide nurse advice line contracted through *McKesson HBOC, Access Health, Inc.* It provides 24-hour medical advice through a toll-free phone service staffed by nurses. This service also provides an audio-health library and online information through their company web site. Self care and medical consumerism programs in the Pacific are integrated in the regional PHCIP and through successful local educational opportunities like *KidsCare* in Alaska, and *Partners in Care* throughout WESTPAC. Various mainstream decision-making texts and self care textbooks like The Healthwise Handbook, Taking Care of Yourself, and Taking Care of Your Child (A Healthwise Publication 1995, Vickery, D.M. & Fries, J.F. 1996, Pantell, R.H., Vickery, D.M. & Fries J.F.

1999, resp.) are distributed as part of the PHCIP to personnel when they arrive at their Pacific Theater Duty Stations.

Use of medical informatics exists in various forums and media like telemedicine, routine teleconferencing, on line information through the nurse advice lines and TRICARE Pacific's web site as a part of the Access Health HCIL service. The Internet is also the platform of choice for the *Pacific Case Management Database* discussed later in this paper.

Finally, preventive services are implemented through local educational initiatives like those involving breast cancer detection, treatment and recovery. Another preventive technique involves stratification through a health status assessment that is filled out locally and tracked through TRICARE Pacific by using the *Health Enrollment Assessment Review* (Office for Prevention and Health Services Assessment, 1997). In general, TRICARE Pacific sees tremendous leverage in providing patient access to care in the use of these demand management techniques.

Utilization review, the second major weapon in UM's arsenal, is an evaluation of the medical necessity, efficiency and appropriateness of services and treatment. This is the evolutionary product line that embodies the original UM definition and concept. Utilization review is closely tied to quality improvement and performance through its use of three

fundamental processes; prospective review, concurrent review and retrospective review. Literally meaning *review before, during or after treatment*, respectively, these three processes usually involve in hospital care (Rossi 1999). More recently the processes are taking different shapes, such as preauthorization for care, a form of prospective review.

Disease management, another UM technique, is a relatively new treatment process of intensive support and care for specific long-standing illnesses and conditions outside of the acute setting. It attempts to manage chronic diseases like asthma, diabetes and congestive heart failure on an outpatient and population basis - through patient education at encounter sites. Care is standardized, highly coordinated and integrated between providers, sites and patients in an attempt to provide a standard level of care throughout the program. Through this proactive and orchestrated approach, the high costs of reactively providing care after disease relapse is greatly decreased. Mainstream believers think disease management should be most effective for chronic illnesses that are endemic in society, have variable outcomes, benefit from patient education and have high healthcare costs (Hoffman, C. and Rice, D. 1996).

The logical outgrowth of disease management is case management, UM's fourth primary technique. *Case management is*

the sole focus of this research. Consequently, it will be discussed independently from this point forward. The previous discussion of demand management, utilization review and disease management was the evolutionary tail and stage from which case management must always develop. It is with that qualification we now turn to case management.

Case Management

Case management has existed for many years. Historically, it described the process through which resources were distributed to (1) children under the Children's Medical Service Program of the 1935 Social Security Act; (2) returning World War II Veterans; and (3) those patients in need of long-term care (Guiliano, K.K. & Poirier, C.E. 1991). Case management, as a profession, began to change with the advent of managed care. Throughout the 1980's, its evolving focus turned to worker's compensation management programs, where nurses showed they could control cost and maintain the quality of care through case management. Hospitals quickly noticed these new efficiencies, so by the mid-1980's, they routinely advocated the use of case management for their more medically complex patients (Gibbs, B. 1995).

Today, we face a healthcare environment that is driven by advances in science and technology, yet is increasingly regulated, fiscally restrained and competitive. The environment of cost containment and heightened expectations routinely shifts care to alternate sites and alternative health providers, while steadily decreasing reimbursement for care delivery (Hicks, L. 1991). Consumers, despite their increasingly savvy presence in medical decision-making, are often overwhelmed during times of major or catastrophic illness. The interface of social, financial, medical and psychological forces culminating during a healthcare crisis is the logical point where case managers will fill an ever-increasing role.

The literature leaves the reader with a considerable number of definitions for case management - all of which strike the same tone. In summary, case management is the coordination of a collaborative process for assessing, planning, monitoring and evaluating the services needed by patients to achieve a quality, cost-effective outcome while meeting the needs of the individual (American Nurses Association Publication 1988, Lyon, J.C. 1993, Cohen, E.L. & Cesta, T.G. 1993, Florida Health Consultants 1999). Illnesses requiring case managers are historically catastrophic or complicated by extreme medical conditions or

social circumstances, but they are not exclusively limited to these situations.

Delivering healthcare in the Pacific is unique in many ways, not the least of which are its austere conditions and geographic distances between care beneficiaries and military medicine's healthcare settings. Analogies in the literature are hard to find - except for Donovan's heavily qualified scenario of managed care in rural mainland settings (Donovan et al. 1994). He describes four significant barriers to rural home care; philosophical and operational barriers, staffing barriers, ancillary service and resource barriers and geographical barriers. While all four examples are partially relevant in providing care to Pacific Theater patients, geographic distance provides the most formidable, expensive and timely issue for USCINCPAC and TRICARE Pacific leadership.

Isolated populations are difficult to care for in CONUS, much less the 50-plus countries in the Pacific Theater. Care for US forces and their families is a round-the-clock concern for regional MTF commanders, TRICARE Pacific and USCINCPAC. Patient movement requires communications compatibility across many different environments and military units, readily available and trained AIREVAC personnel and dedicated or stand-by aircraft that can function in constantly changing weather

conditions. Geographic dispersion of troops and accountability for those troops' care after injury necessitates planning and financing at the local, regional and theater level. The Lynch case also illustrates that the current AES' ability to move patients throughout the Pacific Theater is not always functional, and is in need of repair or possible replacement.

Air Evacuation Mission Guidance

"The mission of the worldwide AES is to transport casualties by air, under healthcare management from forward airfields...and one theater of operation to another" (Air Force Instruction 41-301, 1996, 2). Further, policy directives of the US Air Force establish operational and administrative responsibilities and procedures for worldwide AIREVAC that are consistent with guidance from Joint Publication 4-02.2 (Joint Publication 4-02.2, 1996). AIREVAC, a highly coveted Air Force mission, is meticulously described from the strategic to tactical level over 24 pages in Instruction 41-301, starting with the mission's operational benefit and ending with a complete list of which administrative forms are correct for which patients. While details of the above publications extend far beyond the scope of this paper, the essence is that the AES

provides peacetime training for the airmen who must transport casualties during war.

Currently, determining which patients are appropriate for aeromedical evacuation is made by the Global Patient Movement Requirements Center, located at Scott Air Force base in Saint Louis, Missouri. They carefully consider the risks, care and cost advantages of military lift versus other treatment options. Once such movement issues are solved, the center directs and coordinates the specific patient movement request to the appropriate theater. The Air Force further defines the Patient Administration Officer's duties as determining whether "care is available locally and whether more efficient and cost-effective alternatives are available"(Air Force Instruction 41-301, 1996, 7).

DOD Instruction 6000.11 outlines a standardized policy for the global patient movement mission. Once again, in painstaking detail, it explains which patients are eligible for transport and who should fund movement on DOD aircraft, defining the conditions under which special circumstances will dictate a deviation in the aforementioned policy. Finally, it transfers direct control and authority of DMRIS to the US Transportation Command (USTRANSCOM). Of interest, Instruction 6000.11, for the first time, describes the mandate of developing a single

information system that would track the patient from the field, en route and to the MTF (1998).

In summary, Air Force Instruction 41-301 is *Air Force Centric* in its conceptual development. It prioritizes the Air Force training mission, not patient care. The current AES regulations governing patient movement rigidly place the decision-making, use and control of airlift resources in the hands of non-medical personnel in Saint Louis, five time zones from the Pacific. As a result, medical personnel cannot make appropriate case management decisions for their patients. This minimizes the importance of the patient, relegating them to a position equal to cargo. This authority is misdirected, since patient transport plays only a supportive role in a vast system of take-offs and landings.

Literature reviews of civilian AIREVAC are non-existent. There are few monthly publications and an extremely limited amount of academic literature that address aeromedical evacuation. There are no comparative studies in the literature that address the use of military aircraft for peacetime patient movement. While numerous, event-driven case studies describe scenarios for military, CONUS, overseas and managed care environments (Ritchie, E.C., Morse, J.H. and Brewer, P.G 1996, Johnson, R. & Falcone, R.E. 1995, Ferdinand, M. 1994) only one

author looks at the clinical, and financial, appropriateness of air medical transport (O'Malley, R.J. and Watson-Hopkins, M. 1994).

O'Malley's article highlights the unique nexus civilian air transport is crossing in justifying its use to the managed care environment. Several federal organizations recently developed monitoring metrics that help air medical services justify their services to government or third party payers, but there is no policy or mandate that details when air assets are, or are not, justified. The author finishes with little more than an endorsement of a position paper by the Association of Air Medical Services - trying to justify reimbursement by using a rudimentary checklist of justifiable AIREVAC situations for three demographics; trauma, pediatric and medical patients (1994).

Pacific Theater AIREVAC Responsibilities

The United States Pacific Command Theater Patient Movement Requirements Center (TPMRC) manages the Pacific Theater patient transport system during peacetime and in war. TPMRC, formed in October of 1997 through the merger of two commands, the Pacific Joint Medical Regulating Office and a segment of the 374th Aeromedical Evacuation Squadron, coordinates patient movement requests with the WESTPAC MTFs. TPMRC was the outgrowth of a

larger reorganization in strategic lift assets used for global patient movement (USCINCPACINST 4652.1K, 1998). This exhaustive strategic document, written after *Operation Desert Storm*, discusses many circumstances and contingencies beyond the scope of this analysis, but directly addresses categorical planning for four environments and/or conditions important to this research. They are USCINCPAC responsibilities, peacetime AIREVAC operations, movement of routine patients and the capability to statistically follow patient movement.

USCINCPAC has authority for the policy and staffing of TPMRC, and provides financial support to TPMRC through an annual budget allocation. Pacific-based component commands of USCINCPAC from the Army, Navy and Air Force coordinate and provide TPMRC with statistical updates of MTF capabilities and patient movement within WESTPAC and between WESTPAC and CONUS. Subordinate commanders from each respective branch also provide TPMRC with administrative, logistical and communication support and personnel on an annual basis (USCINCPACINST 4652.1K, 1998).

The Pacific Air Force Command coordinates with USTRANSCOM to schedule and maintain aircraft used for aeromedical evacuation flights throughout WESTPAC. TPMRC, which is physically located in Yokota Japan in close proximity to the 374th Air Evacuation Squadron, is the AIREVAC interface that

CINPAC uses to validate, maintain and update patient movement policy within theater. TPMRC also directly communicates with the TRICARE Pacific Lead Agency, the MTFs and their case managers to ensure patients receive the best quality care at the closest, capable WESTPAC MTF. Current policy lists TPMRC as the approving authority for patient movement within WESTPAC, but vests the Global Patient Movement Requirements Center in Missouri with approval authority for patients moving out of theater (USCINCPACINST 4652.1K, 1998).

Peacetime operations in the Pacific Theater AES are coordinated through TPMRC. Typically, after a competent medical authority verifies the need to move a patient, the patient enters into the AES for transport to the closest MTF with the capability needed for definitive care. Most often, patients receive a consultation sheet from their primary care provider, walk this paper copy to the local case manager and/or Air Evacuation Clerk who inputs the consult request for patient movement into DMRIS. In response, TPMRC issues cite numbers that authorize the patient to move within the AES. If the patient's definitive care is in CONUS, TPMRC still assigns cite numbers but must coordinate with USTRANSCOM's global movement center in Saint Louis (USCINCPACINST 4652.1K, 1998).

Routine patient movements, which this analysis focuses on, are patients that do not need in flight medical support and can move on a regularly scheduled AIREVAC mission, normally within 72 hours. Movement requests are routed from the referring MTF to TPMRC. When the originating MTF specifies the consulted service (e.g. - orthopedic, cardiology, etc.), TPMRC and the MTF work together to locate a WESTPAC MTF that has the capability to provide the needed service. For intra-theater travel, the originating MTF has direct liaison authority with the destination MTF for acceptance and transfer of the patient. Exceptions to this *closest MTF* rule require approval by the Chief, TPMRC (USCINCPACINST 4652.1K, 1998). Regardless of the condition, precedence or needs of the patient - a patient does not move within the AES until TPMRC accepts and validates the need. Validation occurs through a variety of media like telephone message or facsimile, but most often it occurs through DMRIS, the preferred mode of communication.

DMRIS, the Defense Medical Regulating Information System, is the current DOD software platform in use for tracking patient movement in the Pacific. Its heavy clinical emphasis provides benefit to TPMRC in planning how to staff specific flights in line with patient needs, but gives minimal assistance to the

MTFs and case managers in assessing patterns of movement and utilization of services.

The DMRIS form at TAB A is the hard copy, generated electronically, by the Air Evacuation Clerks when logging patients and their consults into the AES. By quickly reviewing the substance and format of the categories, the reader appreciates the clinical focus and narrative format of information gathering. This style of evacuation record is not easily amenable to data analysis because of its lack of categorical answers, and hence, statistical analysis. Further, the software platform is only capable of aggregation in static fields, manipulation requires download to other statistically capable software (Personal Communication, Major Randy Emmert 9-15-99).

TPMRC, and USTRANSCOM, realize these shortcomings. In an effort to address DMRIS' disadvantages and multiple deficits, USTRANSCOM is developing the TRANSCOM Regulating and Command & Control Evacuation System (TRAC2ES), a single system that ties together patient accountability from the field, through transit and between MTFs - all while providing patient visibility (DODI 6000.11, 1998). Its two key performance parameters are (1) Enhanced in-transit visibility of patients within 10 minutes, 95% of the time; and (2) Improving casualty movement, following

the key metric of Lift-Bed Planning, the one stop solution for airlift of hundreds of patients (estimates range from 400 to 1750) every 30 minutes (Personal Communication, HMC Michael Damico 8-14-99). The first TRAC2ES alpha evaluation is scheduled for July 2000. While making giant strides forward from DMRIS, TRAC2ES will still lack the capability to track patients once they deplane and move into the medical system - another indication of the Air Force's unwavering *airplane-centric* mentality in systems development.

Hypothesis

The Defense Medical Regulating Information System is the optimal data management software platform for use by WESTPAC MTFs and TRICARE Pacific in developing a successful Pacific Case Management Network and Database that is predicated upon real-time visibility and regional data analysis of patients moving within the Pacific Theater to access timely quality healthcare services.

Purpose

The purpose of this research is to; 1) identify, or create, a database that can analyze appropriate, quality data to

minimize the effect of geographic distance, and leverage information for strategic real-time decision making, 2) to integrate healthcare delivery with patient movement, and 3) improve access and quality of healthcare.

With the advent of electronic mail, the Internet and open systems thinking in society, distance does not pose the hurdle it once did. Health management information systems, and specifically data collection in healthcare delivery, provide solid footing in today's unforgiving decision making environment - but it is not a panacea. Poorly integrated systems, or those that are difficult to understand by the end user, limit buy-in from short-staffed and cash-strapped executive leadership. Even more bothersome, using data incorrectly in strategic decision making or policy oversight sets up an air of distrust, hampers open communication, clouds the benefit to all parties and urges local leaders to re-evaluate the true usefulness of data capture for oversight.

This research re-energizes and refocuses the Pacific Case Management Network, both strategically and fundamentally. Through the analysis of current patient tracking systems and interviews with WESTPAC Case Managers, this project found that DMRIS did not meet today's WESTPAC Case Manager's needs, neither in data quality or appropriate, efficient patient transport.

Consequently, in addition to disproving DMRIS' suitability in case management, this research developed two additional end products; 1) TRICARE Pacific's new *Pacific Case Management Database*, a coordinated and universal utilization management database for all of WESTPAC AES stakeholders, and 2) a *business case analysis* of patient movement that initiated radical changes throughout the entire Pacific Theater AIREVAC System.

These proposals and facts, along with the realization that technology minimizes time and distance challenges within the Pacific Theater, sets the stage for what this research delivers: an Internet-based database that replaces the DMRIS. Collecting data on a *standard* WESTPAC template (e.g. - the Pacific Case Management Database), placing it into a uniform data system and describing patients in categorical terms, or database fields, is a major component in developing successful WESTPAC case management. Further, Internet access at the MTFs offers a universal and real-time electronic medium for compiling data.

Turning to AIREVAC itself, and after critically reviewing the AES, this research develops a conceptual illustration - a picture, if you will - that shows an effective combination and connection of providers, tracking systems and patient databases. This illustration posits an improvement in accountability and facilitates the proper capture of patient movement data. The

concept develops patient movement into a sequential theme made up of a 3-part process: referring MTF, flight transport and receiving medical institution. The two ends of this three-part process are medical, leaving the remaining middle third to actual patient transport. Each of the three subsets are critically reviewed through their available databases, while actual patient transport is placed into a business case analysis - in the context of financial (dollar) cost and access (hourly) cost.

Methods and Procedures

In early August, 1999, following the Heather Lynch brief, this researcher began a 5-month critical review of how patients move through the current AES. The analysis looked at accountability and efficiencies in all parts of the process, both *in-house* medical tracking and the physical movement of patients. Following informal discovery, the research methodically re-examined the practice of *routine patient movement in peacetime* through the AES. The objective was straightforward: re-energize the case management network and process where necessary, redevelop and unify information systems where appropriate, re-strategize and fix what was inefficient, unnecessarily costly or broken. There were no sacred cows.

Interviews, Database Collection and Collation

There are operational readiness considerations to make before suggesting any change in how patients are physically transported throughout WESTPAC; it is a coveted Air Force mission. In order to be impartial in its approach, this research methodically interviewed each of the network case managers and other system stakeholders and examined the capabilities of DMRIS. The routine format of the questionnaire and its anecdotal summaries collated in TAB B illustrate the telephone interview template for both introductions and specific questions between TRICARE Pacific and the various stakeholders. This initial approach provided a strong and personal foundation from which to assess the MTF healthcare environment, build the analysis and eventually, develop a business case analysis for patient movement.

The patient movement process is multi-faceted and extremely territorial; each facet is steeped in detail. There is extremely limited regional or inter-facility communication in the present patient movement process. Information flow between originating MTFs, TPMRC and the receiving institution is incomplete. Presently, computer systems that track patient movement do not interface, and as a result, render patients

invisible as they navigate through the Air Evacuation and Medical Systems.

In order to evaluate the wide spectra of patient tracking databases that the 22 primary WESTPAC stakeholders used, this research collected data from all 22 disparate collection systems used in the WESTPAC AES. After flattening the databases categorically into a universal database, listed under TAB C, there emerged widely divergent collection patterns among the data holders. With the exception of "Accepting Service/Clinic," no category was collected or followed greater than 50% of the time when compared across all 22 databases. To further illustrate the extreme scatter in these databases, over 80 data points were listed, but the average collection rate for any one point was 15.8%, less than one in six.

Spreadsheets comprised of commercial and AES cost and logistical data from 01 Oct 98 through 30 Sep 99 are listed in Tables 1-4. While expanded in detail later, these spreadsheets, combined with the MTF interview summaries and flattened data (TAB B, TAB C), formed the basis for critical review. These same tables and business case analyses were used for the 14 December 1999 Air Evacuation System/Heather Lynch back brief to USCINCPAC and USTRANSCOM, which led to recent, radical changes in how future WESTPAC patients will be moved.

The interpretation of personal interviews, flattening and collation of retrospective data into one universal database and the business case analysis necessitated multiple assumptions. They are described in the context of the paper and on the relevant tables. Footnotes, correspondence and web sites are indexed on the individual spreadsheets and listed under this paper's Reference List.

Discussion of Findings and Analyses

The three components of the patient transport process are coordination at the referring MTF, transport of the patient from referral to destination, and coordination at the destination MTF. The analysis discusses the three pieces of this process in two blocks, one medical and one transport. The medical blocks of referring and destination MTF are combined because of the substantial overlap in problems and fixes shared by WESTPAC MTFs and the most common destination, Tripler Army Medical Center.

The following discussion is at risk of portraying patient transport as a one-way phenomenon, it is not because greater than 99% of patients return to WESTPAC following treatment. This fact is highlighted again during the discussion of the business case analysis of patient movement in the current AIREVAC Process.

The Research Questionnaire and Stakeholder Interviews (TAB B)

Starting with the 14 WESTPAC MTFs, the interview process uncovered numerous roadblocks and inefficiencies, all the result of a stovepipe-like system of tracking patients. The research found many interesting anecdotes through phone and email surveys. In all, this researcher corresponded with more than 75 medical and air transport staff in order to research the medical processes at both ends, and throughout the AES. A universal finding was the majority of stakeholders had their own agendas with little regard or understanding for how they fit into the entire AES process.

More specifically, the qualitative research found:

- Limited oversight of patient movement by clinical personnel at the MTF;
- No accountability for cost and access efficiencies in delivering care or coordinating care between providers and institutions; and
- Tracking patient movement inside, and especially outside, the AES was limited by information systems, shortages of personnel and lack of cohesive education and oversight.

During discovery and due diligence, the research showed - both anecdotally, and through the 100% use of other tracking

mechanisms at the MTFs - that DMRIS was not dependable enough, nor capable, of meeting local needs. Thirteen of the 14 MTFs were running parallel but disparate software tracking systems at the institutional level, increasing workload with limited benefit to local efficiencies. These independently functioning databases gave no benefit to the theater or to tracking patients as they departed their WESTAPC duty station on their way to care.

The Medical Landscape at Origin

At the originating WESTPAC MTFs, research found a case management system needing energy and command buy-in. Working knowledge of patient tracking mechanisms was routinely relegated to enlisted and host national AIREVAC Clerks far removed from the clinical setting. Case managers were dual- and triple-hatted junior officers; few had clinical backgrounds. On a positive note, consult processes at the originating institution were efficient, often taking less than 24 hours for consult approval and the patient information to be typed into DMRIS and the MTF's tracking databases.

The Medical Landscape at Destination

Throughout this paper, Tripler Army Medical Center was considered the "destination," although destinations could be other WESTPAC MTFs, CONUS MTFs or civilian institutions. At Tripler, research uncovered similar breakdowns in communication between systems and stakeholders. The service liaisons at Tripler often dealt with late AES patient manifests and unscheduled arrivals. This severely limited their ability to arrange lodging and billeting in any coherent and organized fashion. Each of the five service liaisons (including Coast Guard) worked off their own system of patient tracking. Few talked to each other, to Tripler Case Managers or to the originating MTFs in WESTPAC.

The DMRIS team, working for TPMRC but assigned to Tripler, required patients to manifest 72 hours prior to the weekly Saturday scheduled AES departure from Hawaii to WESTPAC. Doing the math, the reader realizes that patients had to manifest no later than close of business Tuesday to fly on Saturday. The inbound weekly scheduled flight arrives Tuesday mornings from WESTPAC with most appointments occurring within the first 48 hours. Consequently, despite many patients being ready for return lift by Thursday and Friday afternoon, they miss the manifest window.

Most patients return to WESTPAC commercially, a minority wait until the following Saturday's AIREVAC flight, costing \$171 per day per diem in Honolulu. Tripler-base service liaisons realized that 3 days at \$171 dollars per diem, or \$523, would get most patients back to their duty station sooner and with less en route delays. Correctly, and among themselves, they followed a standard rule of thumb; if the patient will wait longer than 3 days for an AES flight back to WESTPAC, they urge parent commands to fund return travel by commercial carrier. This is what accounted for interview estimates by MTF staff that 50-100% of all returning patients travel via commercial carrier (TAB B, Question 11).

Finally, Tripler's Case Managers were using a patchwork of communication methods to relay information back and forth with referring WESTPAC MTFs. This method proved inefficient and vulnerable to lost transmissions and paperwork. A varying combination of WESTPAC personnel were the points of contact for Tripler Case Managers, creating varying degrees of success, but falling unacceptably short in accountability for tracking and managing patient movement with efficiency.

Evaluating the Defense Medical Regulating Information System

Looking only at the 14 MTF's patient information and

tracking systems, 13 had parallel databases to DMRIS with only two of these systems being capable of speaking to each other electronically. There were many reasons for systems running parallel to DMRIS, but the major reasons were:

- DMRIS is not functional at the local level because it is a proprietary database that cannot be queried locally. Queries, written by contractors located in St. Louis, make them costly in both time and money.
- DMRIS has poor reliability and limited MTF buy-in.
- DMRIS allows data aggregation, but not data manipulation.
- Analysis through data manipulation requires static screen download and upload into statistical software.
- DMRIS collects clinical level data: good for hands on care, but limited application at the population level which is where Case Management has its most pronounced effect in Managed Care.
- There is limited understanding of how DMRIS fits into the AES system by WESTPAC MTF AIREVAC Clerks, Case Managers and MTF Managed Care Departments.

Flattening the Databases

In addition to interview-style anecdotal discussions with the MTF points of contact that helped define the landscape for this project (TAB B), this research collected all relevant MTF, service liaison and proposed databases (TAB C). The 13 MTF databases, the focus of this research, ranged from written ledgers to sophisticated databases - but consistently they all lacked the ability to track patients throughout the system and to provide any value for the system beyond their institution. Those 13 MTF databases, and 9 other AES stakeholder databases throughout the Pacific Theater, collected over 80 different data points. While many of the data points were specifically focused on local UM concerns and not case management, collecting the databases helped define and clarify the MTF priorities, and what they would accept in a universal database.

Flattening the databases was highly interpretive and labor-intensive because of the various wordings of questions, software platforms, and narrative and categorical answer differences. Individually, this research transferred MTF data fields into excel spreadsheets where consistency existed between the question and answer categories. Out of the 83 data points, *only four* were consistently close in content and substance to blend into a universal database.

The four data points are illustrated in Figures 1-4, and describe very basic demographics; referring facility, accepting facility, accepting service and beneficiary category. Most of the referrals were for various special radiological procedures like echocardiograms, barium studies and ultrasonography for pregnancy, surgical subspecialties and cardiology. Of note, but not illustrated because of widely divergent databases, is that one third of the systems tracked medical attendants, and almost 60% tracked non-medical attendants. This exemplifies the financial importance (in dollar cost) WESTPAC MTFs place in following associated attendant costs incurred during the AIREVAC process. Consequently, directly addressing financial data capture in the Pacific Case Management Database was a priority.

None of the MTF systems, or DMRIS, tracked the patients throughout the entire process. Patients became invisible to the AES at different points. MTF systems lost the patient when the patient boarded the plane at the point of origin (i.e. - tracking systems only worked locally). DMRIS loses the patient when they deplane at the consultation site (i.e. - DMRIS does not interface with Tripler systems). Patients remain invisible while undergoing consultations at Tripler until they check in with their service liaisons to arrange travel home. Often, if the patients flew back to WESTPAC on commercial carriers, they

remained invisible to case managers, DMRIS and Tripler until they closed out their orders - often weeks after they returned home.

Moving Patients Through The Air Evacuation Process

AIREVAC is inextricably woven into the fabric of providing medical care in the Pacific Theater - where the distance between medical need and medicine's resources are measured in air miles, not ground distance as in other parts of the world. It is safe to say TRICARE Pacific patients cannot drive from their primary care provider to a specialist like patients do in CONUS. Patients are moved by air in WESTPAC. Following that logic, air transportation is a subset of the entire patient care process, and a system-wide fix *must* consider the tracking of patients as one continuous process, not the parallel processes that currently exist in the medical and transport arenas.

1,443 patients moved in WESTPAC from July 1 to September 30, 1999 - this number excludes Alaska (Email Correspondence, Major Randall Emmert 10-27-99). Ninety-six percent, or 1,385 of the 1,443 patients, were categorized as routine. That means their consults were not medically urgent in nature.

Turning to the flight itself, July's story of Heather Lynch illustrates that the flights themselves can be unreliable. Additionally, what began here as a simple research analysis of the time it takes to travel between the various WESTPAC MTFs uncovered the fact that even when the flight system worked without delay, it added significant delays for the patient. It takes many more hours, and sometimes several days more to move patients in the AES than it would to get a patient from point A to point B and back again using commercial airlift alternatives.

This delay is costly and unacceptable to WESTPAC patients and their families, especially to service members who are away from their duty stations for more than a week just to get a specialist's opinion or a sophisticated test. The delay creates lost job productivity; it increases travel and per diem expenses; it creates an adverse family impact; and impacts the efficiency of healthcare utilization. This researcher, the Lead Agency and USCINCPAC saw how the cost of the AIREVAC system could escalate, because time is money, to say nothing of the perception problem the AES and TRICARE Pacific has among patients who are asked to get on several airplanes and wait sometimes days in between flights to get to their doctor.

This finding greatly expanded the scope of the original research, and culminated in an extensive business case analysis

on patient transport (Tables 1-4). The analysis examines the extent of the potential and historical costs involved in the AIREVAC system - both in dollars and hours of down time. It was prepared for the TRICARE Pacific Lead Agent and USCINCPAC in anticipation of the hard decisions that appear imminent for the current patient movement processes. Suggestions for changes in the current transportation process are discussed later in this paper, following the business case analysis findings.

Redefining the Pacific Case Management Process

There are three distinct, parallel, partially redundant and non-communicating segments of the current AIREVAC process. While they all work toward a common goal, they each have their own parochial interests and protected turf. The three separate segments are the originating (or referring) institution, the destination (or accepting) institution and the patient movement process. Each of these segments tracked the patient in only one direction, not roundtrip. Conceptually, looking at this process, there are two ends and a middle. Critical analysis shows how inextricably woven the AES is in the health delivery system, because it is one-third of the entire process.

Ironically, the three parallel patient tracking processes currently in place at the MTFs and TPMRC don't track the patient

at all. One system plans the patient's treatment at the MTF, one captures the flight from the referral site to the consult site, but only one way, and a third monitors the treatment at the receiving facility.

The Business Case Analysis of Patient Movement

Specific proposals to improve AES patient transport and routing are outside the expertise of this medical research. However, the ensuing business case analysis of patient movement is not. It is complete and factually based, providing an entire air movement process evaluation. It offers a substantial base from which USCINCPAC, 374th AES leadership and Air Force staff can further critically evaluate their strategic lift's cost effectiveness in view of TRICARE Program access standards in the Pacific.

In order to make the worksheet calculations as accurate as possible, this research contacted personnel at Tanker Airlift Control Center in St. Louis, TPMRC in Yokota and the Air Force web site for specific flight patterns and costs associated with each trip (Tanker Airlift Control Center 1999). For the sake of real-time comparison, this analysis compares the civilian flight and government fare price data from the Carlson-Wagonlit travel extension office in Tripler Army Medical Center (Personal

Correspondence, Carlson-Wagonlit Office 10-26-99). Some assumptions were made in order to complete the worksheet. For example, it assumes patients are entirely ambulatory and can return to work immediately after they are brought home. Most of the listed assumptions are self-explanatory or will become clear as this analysis' narrative remarks describe the specific tables and spreadsheets.

General Assumptions: SYSTEM

1. Data harvest from the 3rd Quarter 1999 (7-1-99 to 9-30-99) for scheduled Air Evacuation System missions are consistent with flight patterns throughout the rest of the year.
2. This model does not consider necessary local travel, lodging and transportation to deliver the patient to AES or commercial runways; it only follows the patient from "Tarmac to Tarmac." This analysis addresses the timeliness of physical movement within Commercial and Military Air Transportation systems.
3. This model contains certain geographic point-to-point patient delivery routes that are not usual strategic AES Missions. In these cases, this analysis uses scheduled intra-theater C-9s to meet C-141s on scheduled AES Missions into and out of Yokota.

4. Destination San Diego, California could be through March Air Force Base, Miramar Marine Corps Air Station or Naval Air Station North Island.

General Assumptions: *PATIENT*

1. Third Quarter 1999 Defense Medical Regulating Information System statistics show movement of 1443 Patients in the AES: 32 Urgent, 26 Priority and 1385 Routine (2.2%, 1.8% and 96.0%, respectively).
2. This model assumes patients traveling within the AES and who must remain overnight (RON) in Yokota will take the first available scheduled connecting flight from Yokota - both in transit to Tripler and return to duty station following consultation.
3. Patients in this model are Active Duty Members who are ambulatory, do not require attendants of any kind, are fully mobile and undergoing routine consultation.
4. This model assumes full workplace productivity up to the date of departure and immediately upon return. Consequently, there is no lost salary prior to departure in the AES Model.

General Assumptions: WORKSHEET EQUATIONS

1. Measurement Costs (Dollars) = Ticket Cost + Departure Delay

Cost + RON Delay Cost

2. Lost Salary Costs (Dollars) = Daily Salary x (1 + Departure

Delay Days + RON Delay Days)

* The "1" denotes lost salary on travel day.

3. Travel Time (Hours) = Travel Time Total Hours + Departure

Delay Hours

4. Delta (Days) = Delta of Travel Time Hours / 24

Patient Travel Costs in Dollars (Table 1)

This spreadsheet contains factual and interpretive data from a variety of sources that are footnoted at the bottom of Table 1. The two left columns break out origins and destinations of patient travel. Across the top, there are two main categories listed as commercial travel and AES travel.

Sub-categories broken out under the commercial and AES categories are ticket cost, flight frequency, departure delay in days and costs and RON delays in costs. While most of these subcategories are self-explanatory or clarified in footnotes 4

and 5, the following discussion will clarify the explanation for departure delays and RON delays.

A *Departure Delay* in days is the delay when there is no flight availability. The departure delay in dollar costs is the expense to support the active duty service member at the location where they wait for the flight. This cost equals the per diem times the delay. The *RON Delay* is that cost incurred for supporting the active duty while they wait en route for flight availability at connecting points. This analysis model sent all patients through Yokota in coordination with the once-per-week scheduled C-141 AES mission. The RON costs equal the per diem at Yokota times the number of RON days.

As an example, study Tripler Medical Center transportation in the first section. Commercial ticket costs average one-third the cost of AIREVAC travel. Commercial flights are much more frequent, causing no departure delays. A statistical axiom, The Central Limit Theorem, allows us to assume the AES system, with only one flight per week, delays both directions of travel by 3 and one half days (Sanders, D.H. 1995). Additionally, the connections that the AES system requires often lead to overnight stays in Yokota that are costly in per diem and salary costs, which are described in Table 3. Figures below the Honolulu

example for travel to Madigan, Travis and San Diego Regional Medical Centers are also listed for the reader's inspection.

Patient Travel Costs in Hours (Table 2)

This spreadsheet contains factual and interpretive data from a variety of sources that are footnoted in Table 2. The two left columns break out origins and destinations of patient travel. Across the top, there are two main categories listed as commercial travel and AES travel. The reader is again invited to review footnotes 1, 2 and 3 as they directly refer to the data collection under these categories.

The subcategories broken out under the commercial and AES categories are travel time in flying hours, travel time in total hours, flight frequency, departure delay, outbound and inbound RON days. Most of these subcategories are also self-explanatory or clarified in footnote 5. However, a detailed discussion describing the differences between flight hours and total hours and departure delays, and an explanation of the final two categories listed as commercial and AES hardships are included for clarification.

Travel Time flight hours means the time patients are in the air, wheels up to wheels down - flying tarmac to tarmac. *Travel*

Time total hours are the time the patient is in the transit process - waiting, connecting, going through customs and, with the AES, remaining over night in order to catch connecting flights. The *Departure Delays* are the same as previously discussed in Table 1's cost terms, except here they are described in access or hourly terms.

Looking again at Tripler, in the first section, the reader appreciates that when a patient flies in the AIREVAC system, the total hours he or she spends in travel time can be as much as six times greater than taking a commercial flight. For example, the flight from Honolulu to Guam is a 7-hour commercial flight that is offered twice a day, while it takes the AIREVAC system 45 hours to get there (that's one stop and a 2-day delay in Yokota waiting for a connecting flight). Of note - this is not the longest flight delay on the sheet. Other destinations are available for the reader's perusal.

As an aside, quality is in part the perception of the patient and their families - in the delivery of medical care and means of transportation, between necessary healthcare delivery sites. Many parameters are qualified as intangibles, or those that are hard to quantify. The top right columns of Table 2 listed as *Hardships* give a glimpse into what the patient faces while using commercial and AES travel. While these are only

general statements and findings - it is what the patient remembers most often - because it folds into the larger experience of the entire care event. In medicine, a patient's perception is often their reality.

Individual Patient Travel Costs Worksheet (Table 3)

The top of this spreadsheet lists salaries for active duty personnel, which are culled and averaged from various resources listed in the bold outlined box. The gray box is the cell that links this sheet to the spreadsheets in Tables 1 and 2. It is the variable - if you will. On the electronic version of this spreadsheet, the reader can plug in any rank and salary, and this worksheet will calculate the costs associated with that rank's travel, one-way and round-trip, from Japan, Okinawa, Korea and Guam to Tripler, Madigan, San Diego and Travis Medical Centers. It compares commercial and AES travel in dollars and days.

Table 3 uses an E-5 for demonstration purposes. This final worksheet shows the escalating cost to the Armed Forces when the patient is delayed because the analysis considers the lost salary costs (e.g. - *Remember - time is money*). The bottom section entitled Total Deltas for Round Trip Travel shows that the difference between commercial and AES travel, on a per-

person basis, is staggering. At no time is it less expensive or faster for a patient to travel in the AES system.

Up to this point, Tables 1-3 examine the cost per person. The tables do not aggregate the data for, say, all patients in a given quarter or entire year. Table 4, the *Annualized Travel Costs Worksheet*, takes the opportunity to look at just that, by annualizing the data.

Annualized Theater-Wide Patient Travel Costs (Table 4)

Annualizing the data started with querying DMRIS for the most frequent rank that traveled between Japan, Korea, Okinawa or Guam and Honolulu, in the third quarter of 1999 (Email Correspondence, Major Randall Emmert 11-15-99). After correcting for the proportion of patients that traveled from each locale, and annualizing the quarter's data, analysis uncovered that the AES system cost the government \$1.67 million over and above the cost of commercial travel in the space of 12 months. Further, patients spent an average of 3 to 5 more days individually; or, when annualized and aggregated, 9.8 man-years (2354 workdays) cumulatively, away from their duty station than they would have had they flown commercial. These final amounts are listed in the bold box in the lower quarter of the Table 4 worksheet.

Changes in Medical Processes of the Air Evacuation Process

Finally, having laid out the current landscape of Military AIREVAC, this research lists definitive changes WESTPAC Medicine has made and will continue to make through the TRICARE Pacific Lead Agency. Ultimately, this research will help the Lead Agency make the Pacific regional medical system more accountable and efficient. The reader is also left with alternative suggestions for patient movement throughout the Pacific Theater - strategically and financially using military and civilian contract elements.

Illustrating the Redefined Case Management Process

After follow-up discussions with many of the original stakeholders from the MTFs, TPMRC, personnel from St. Louis' Global Patient Movement Regulating Center and Tanker Airlift Control Center, Tripler Case Managers and the Service Liaisons, this analysis conceptually re-engineered the current three separate and disparate processes into one sequential process that works in a coordinated fashion. Of necessity, the lines of communication needed defined trails, enforceable accountability, and an information system that allows the MTFs to coordinate and manage healthcare delivery by integrating patient movement throughout the Pacific. The Pacific Case Management Database

offers TRICARE Pacific the capability to strategically evaluate and develop best clinical and business practices in providing patient care for the Pacific Theater. This *roadmap*, found at Figure 5, was only limited to the extent that it describes the movement of patients and the accountability for *routine and ambulatory* patients.

The illustration creates a single and sequential process, following patients from the moment they present at the origin to the moment they return to their unit following treatment at the consult site. This concept vests full accountability for patient movement in the institution's case managers, depicted by circles in Figure 5. This is a radical departure from the current AES that uses TPMRC, through DMRIS, to track patients moving throughout WESTPAC, and to CONUS.

Looking closely at Figure 5, the solid lines with bi-directional arrows - between the case managers, providers and each other - are the primary lines of communication and data flow for the clinical and logistical coordination of patient movement within the institutional setting. The dashed, bi-directional lines are secondary, oversight lines of communication and data flow. Real time data flow that occurs over a web-based platform simultaneously provides oversight, the

ability to develop metrics and patient tracking for each of the 14 MTFs and various other stakeholders.

After research redefined the sequential process of patient movement - this analysis developed gauntlets of accountability that, for the first time, have a direct connection to the TRICARE Pacific Lead Agency (refer back to Figure 5). The Lead Agency provides case managers with the education they need, and receives feedback so the office can continuously re-energize the rapidly evolving Pacific Case Management Network. One of the most significant changes is that this system creates two firmly accountable people - *the case managers*, at both the referring and accepting ends of the evacuation process.

This case management interface requires a clinician (most appropriately a nurse) who is knowledgeable of the MTF capabilities and the local host nation's medical capabilities, and is capable of using rudimentary commercial databases like Microsoft's Excel and Access from a web-based platform. While the case manager will use data-gathering software to track the patient, statistical analysis and data manipulation is not necessary at this level of patient management.

Finally, the geographic descriptions of referral base, local transportation and strategic lift in Figure 5 describe the area where the referral originates and ends, the local

transportation that is routinely used for ambulatory patients and the major embarkation points for moving patients by strategic and/or commercial aircraft from WESTPAC.

Changes at the TRICARE Pacific Lead Agency

Given these research findings, TRICARE Pacific is aggressively and unambiguously changing the way it coordinates and tracks patient movement through the Pacific Theater. Some examples of how the Lead Agent is prioritizing strategic oversight, enhancing communication and improving information flow throughout the system are;

- Placing a senior nurse at the Lead Agency whose primary role is strategic oversight of the Pacific Case Management Network.
- Lead Agency clinical staff is traveling to all 14 WESTPAC MTFs to educate the case managers and AIREVAC Clerks in the overall Case Management System, at a local and strategic level.
- The Lead Agency established information flow between all WESTPAC Case Managers through updated phone and email groups.

Changes at the Medical Treatment Facility

Changes at the Lead Agency are not made in a vacuum; they are closely coordinated with TPMRC, Tripler Army Medical Center personnel and the 14 MTF case managers. Attempting to rid the Pacific Theater of stovepipe mentalities, TRICARE Pacific is accentuating regular and ongoing communication with the Case Managers and Military AIREVAC personnel stationed in Yokota and St. Louis. Specific examples of processes that have been initiated out of this research are:

- TRICARE Pacific and the case managers have developed metrics (or measures) of efficiencies that will enhance an ability to share best practices in patient movement among WESTPAC MTFs;
- In early November, the TRICARE Pacific started a monthly case managers teleconference where the 14 MTFs and Tripler case managers and AIREVAC Clerks will share experiences, concerns, process suggestions and improvements and educational topics related to Case Management; and
- TRICARE Pacific will send the new Chief, Case Management and Medical Director to all MTFs in an effort to meet, energize and educate clinicians and institution commanders of the importance of Case Management in the AES processes.

The Pacific Case Management Database

Following the collection and flattening of the 22 databases throughout the Pacific Theater, this research developed a question list consistent with the MTF desires and the need to form a Lead Agency UM data collection backbone for the Pacific Case Management Network (TAB D). These questions, placed on a Microsoft Access platform, are The Pacific Case Management Database. The various screens, as they appear on the World Wide Web, are illustrated at TAB E.

This database is already in use, having been posted to TRICARE Pacific's secure web site on December 1, 1999. It is fully integrated and compatible with other commercial and current proprietary programs, containing the ability to aggregate, manipulate and analyze data. Since this is a secure site, case managers log on with user names and passwords. Once the client is authorized, the screen appears as TAB E, Page 1 of the web site. The system is intuitive allowing easy additions, editing and retrieval of existing cases.

This commercial, off-the-shelf patient database is universally applicable and unrestrained by proprietary contracts. It is a real-time tool that allows tracking and clinical coordination of patient movement throughout the entire AIREVAC Process - both outbound and returning to WESTPAC.

Because it is commercially available software, and developed off a statistical platform - each institution can query and analyze data locally, while comparing themselves by country, region or theater. It also provides single data entry, removing the need for parallel systems and DMRIS at the local level. Perhaps most importantly for our patients, this research and the resultant changes help the Lead Agent to strategically monitor patient movement, direct medical resources and further refine the AIREVAC Process.

Leaving the changes already occurring throughout WESTPAC, at the MTFs and in many medical processes, this research turns to the transport process itself. The middle third, or actual air transport, by necessity must be critically reviewed and reconciled in today's managed care environment. While definitive changes are outside of this researcher's expertise, discussion and academic suggestions are not.

Suggestions for Improving Patient Air Transport

After reviewing this paper and business analysis, there is no doubt that many assumptions can be debated - but that is in the eyes of the beholder. Further, after adding costly intangibles that this model did not consider -- like decreased unit efficiency, secondary gain from missing work and traveling

to Hawaii, the loss of unit cohesion, disruption and geographic separation of the family and of course patient (and passenger) satisfaction -- the differences between the current system of civilian versus military transport in the Pacific is even greater.

Given this knowledge, imminent, and perhaps radical changes are in order for the patient movement process using military and civilian airlift resources. This research suggests the following:

- Consider new routings for AIREVAC - both to Honolulu and direct from WESTPAC Embarkation points to Medical Centers in Washington State and California;
- Allow patients and case managers to use the first available method of travel for routine patients, whether it is commercial or military AES. Allow this decision to be made within the Pacific Case Management Network between referring and accepting elements;
- Consider replacing AES entirely with the use of commercial transportation when moving routine, ambulatory patients and non-medical attendants to consultation sites;
- Develop a similar business case analysis for the use of Air Ambulances in transporting priority and/or urgent

patients; and

- At the information systems level, consider the development of non-proprietary software systems that offer patient tracking, data collection and analysis to the primary user at the level of the MTF. Current USTRANSCOM patient tracking systems in use and TRAC2ES, under development, seem to benefit only TPMRC and not the MTF. New patient tracking systems must center on the patient, not the aircraft - and the systems must interface.

Strategic Issues

Rising above the tactical and operational levels, where discussion centered on patients and aircraft, this research offers more suggestions at the strategic level. In general, patient movement during peacetime should not have to compete with movement of military material logistic supplies. Also, the design of patient's movement processes and systems during peacetime should not be limited to casualty movement concepts during wartime. Policy and military doctrine must change before operations can follow.

More specifically, immediate policy and doctrinal changes that should be made are:

- To integrate healthcare delivery with patient movement, resources should be centralized with a coordinated decision-making process to include the network and database;
- Standardize commercial travel reimbursement methods among all branches of DOD. Integrating financial systems in the Pacific under the healthcare umbrella would simplify accounting and accountability for developing cost efficiencies in patient movement;
- WESTPAC MTFs and the Lead Agent must strengthen relationships with regional Centers of Excellence for care of US Personnel and their families closer to the duty station in countries like Singapore, Hong Kong and Thailand;
- Patients and clinicians must realize, through education, that foreign doctors can provide good quality care;
- Current lead agency contracts should expand to include wrap around funding for intra and inter- theater patient movement on commercial carriers;
- Military capability to fly patients should be maximized, where appropriate to address operational readiness but not to the detriment of an efficient patient movement process;

- The Theater Patient Movement Requirements Center should continue to function as a reduced entity - coordinating the evacuation of urgent and priority patients, and some routine patients. It should continue to be physically located in Yokota, but its chain of command should be placed under the Lead Agency as a part of Logistics and Utilization Management during peacetime; and
- Finally, DOD should entertain the concept of jointly developing evacuation planning in coordination with other commercial air evacuation systems - at the local, regional and theater levels.

Conclusions

This research's in depth analysis on case management data-basing, accessibility and costing of patient movement for healthcare from tarmac of embarkation to tarmac of destination and back again was long overdue. This investigation demonstrated that DMRIS does not fully support the data aggregation, analysis and interface needs of WESTPAC MTFs, managed care or the Pacific Case Management Network. Further, this research uncovered parallel data systems in the treatment facilities that are poorly interfaced throughout the Pacific

Theater. While these fractionated systems are useful at the local level, they do not efficiently track and manage patients within the larger Pacific Theater, the TRICARE Pacific managed care network or the AES. The very fact that intra-theater patient movements are an everyday occurrence necessitates that these systems at least be compatible with each other, and fully capable of analyzing the data within from a regional perspective.

This study also prompted the development of the Pacific Case Management Database, which was written on commercially available software, and saved over \$.7 million dollars in software design. The database has the potential to save millions more if it generates strategic changes in how future patients travel when in need of healthcare that is unavailable locally.

This analysis uncovered and directly addressed numerous process flaws in the Department of Defense's current patient tracking methods. The MTFs' ad-hoc and reactionary approach to case management is indefensible and unnecessary, given today's technology and open systems thinking. While many medical commanders and healthcare providers may view web-based data collection as time taken away from bedside care, it's becoming apparent that case management and the development of best

clinical practices are paying benefits to clinicians. These new methods for managing patients let the providers take care of their patients throughout the episode of healthcare (which, in the Pacific requires significant travel) - while others take care of the logistics.

The data and case management principles that will evolve out of this research will help minimize adverse family impact and limit disruptions in job productivity that affect operational readiness, and enhance diverse quality of life issues, healthcare access and quality. Perhaps most importantly, it enhances access to Western-style healthcare as close to the Pacific (or WESTPAC) duty station as possible.

This research also encouraged USCINCPAC to consider sweeping changes in current AES operating principles. For decades patients have traveled on these relatively infrequent flights, stopping in several countries at times to complete the route to a hospital thousands of miles away, based on the same military logistics principles used for moving equipment and supplies.

But as information systems and case management practices matured, and peacetime quality of life and quality of healthcare issues rose in priority, leaders started to see this wartime system of transports as burdensome, inefficient and

indefensible. For routine patient travel, the military medical air evacuation system for peacetime healthcare access must be re-engineered.

A *Wall Street Journal* article entitled, "Desert Snooze, As the Military Slims, Each Soldier's Upkeep Grows More Expensive," implies our leadership is asleep at the switch. The article quoted military panel experts and General Accounting Office reports which said "the Department of Defense is burdened by a far flung support infrastructure that is ponderous, bureaucratic and unaffordable...billions of dollars are wasted annually on inefficient and unneeded activities" (WSJ, November 11, 1999, A1).

This is mainstream press and with it comes taxpayer vigilance. TRICARE Pacific's Case Management Network and accompanying database are positive and trend setting within the entire TRICARE Program. By developing this database internally, TRICARE Pacific saved hundreds of thousands of dollars in contracting costs, while making the system more universally available to all parties.

This research study has outlined the path toward a successful case management system, and has become a model for integrating healthcare delivery with patient movement between distant medical facilities. Ultimately, these interventions

will benefit the quality of healthcare delivery by improving access and decreasing costs, all while providing improved healthcare at the right time and as close to the duty station as possible.

Reference List

Academy for Healthcare Management and American Association of Health Plans, (1999). Managed Healthcare, An Introduction (2nd ed.). Washington DC, Darby Printing Company.

Adams, Chris (November 11, 1999). Desert Snooze: As the Military Slims, Each Soldier's Upkeep Grows More Expensive. The Wall Street Journal, Section A, A-1.

American Nurses Association (1988). Nursing Case Management, Publication Number 32, Kansas City, MO, American Nurses Association Press.

Case Management Resource Guide. (March 1998). Disease State Management and Case Management. Retrieved September 17, 1999 from the World Wide Web: www.cmrg.com/guide.htm

Case Management Society of America. (January 1999). Case Management in Managed Care. Retrieved September 14, 1999 from the World Wide Web: www.cmsa.org/resources/sites.html

Cohen E.L. & Cesta, T.G. (1993). Nursing Case Management from Concept to Evaluation. Saint Louis, MO: Mosby Publishing, Inc.

Patient Movement in the Pacific Theater 79

Department of Defense. (November 1999). Official DOD Per Diem Rates. Retrieved November 10, 1999 from the World Wide Web: <http://www.dtic.mil/perdiem/index.html>

Department of Defense Instruction (1998). Patient Movement. DODINST 6000.11.

Donovan, M. & Matson, T. (1994). Outpatient Case Management: Strategies for a New Reality. Chicago, IL: American Hospital Publishing, Inc.

Email Correspondence, Major Randall Emmert, Jr., Director, Pacific Command Theater Patient Movement Requirements Center, Yokota, Japan, 10-27-99.

Email Correspondence, Major Luis Morales, Tanker Airlift Control Center, Saint Louis, Missouri, 10-27-99.

Email Correspondence, Lt. Col. Charles Tupper, Deputy Director/Chief Operations Division, USTRANSCOM/GPMRC, Saint Louis, Missouri, 10-27-99.

Email Correspondence, Major Randall Emmert, Jr., Director, Pacific Command Theater Patient Movement Requirements Center, Yokota, Japan, 11-07-99.

Email Correspondence, Major Randall Emmert, Jr., Director, Pacific Command Theater Patient Movement Requirements Center, Yokota, Japan, 11-15-99.

Ferdinand, M. (1994). Air Ambulance Services: Integrated Emergency Care. Journal of Healthcare Material Management, 12(10), 19-21.

Florida Health Consultants. (November 1999). Case Management in Geriatric Health Care Services. Retrieved November 11, 1999 from the World Wide Web:
www.flahealth.com/index.html

Gibbs, B. (1995). The Role of the Clinical Nurse Specialist and the Nurse Manager in Case Management. Journal of Nursing Administration, 25(5), 28-34.

Guiliano, K.K. & Poirier C.E. (1991). Nursing Case Management: Critical Pathways to Desirable Outcomes. Nursing Management, 22(3), 52-55.

Healthwise Publications, (1995). The Healthwise Handbook, A Self-Care Manual For You (12th ed.). Boise, Idaho, Healthwise Incorporated.

Hicks, L. (1991). Nursing Challenges in Managed Care. Nursing Economics, 10(4), 265-276.

Hoffman, C. & Rice, D. (1996). Persons with Chronic Illness: Their Costs and Prevalence. Journal of the American Medical Association, 276 (7), 1472-1478.

Johnson, R. & Falcone, R. (1995). Air Medical Response for Illness Revisited. Air Medical Journal, 14(1), 11-15.

Department of Defense Joint Publication (1996). Joint Tactics, Techniques and Procedures for Patient Movement in Joint Operations. Joint Publication 4-02.2.

Kongstvedt, P. (1997). Essentials of Managed Health Care (2nd ed.). Gaithersburg, MD: Aspen Publishers, Inc.

Lyon, J.C. (1993). Models of Nursing Care Delivery and Case Management: Clarification of Terms. Nursing Economics, 11(4): 163-169.

Meisenheimer, C. (1997). Improving Quality: A Guide to Effective Programs (2nd ed.). Gaithersburg, MD: Aspen Publishers, Inc.

O'Malley, R.J. & Watson-Hopkins, M. (1994). Monitoring the Appropriateness of Air Medical Transports. Air Medical Journal, 13(8), 323-325.

Pantell, R.H, Vickery, D.M. & Fries, J.F. (1996). Taking Care of Your Child (5th ed.). Reading Massachusetts, Perseus Books.

Personal Correspondence, HMC Michael L. Damico, Superintendent, Sr. Med. Regulator, Pacific Command Theater Patient Movement Requirements Center, Yokota, Japan, 8-15-99.

Personal Correspondence, Major Randall Emmert, Jr.,
Director, Pacific Command Theater Patient Movement Requirements
Center, Yokota, Japan, 9-15-99.

Personal Correspondence, Carlson-Wagonlit Travel, Tripler
Office, 10-26-99.

Ritchie, E., Morse, J. & Brewer, P. (1996). Surviving the
"Air Evac": Medical and Logistical Issues of Evacuating
Psychiatric Patients by Air from Korea to the United States.
Military Medicine, 161(5), 298-302.

Rossi, P. (1999). Case Management in Health Care: A
Practical Guide. Philadelphia, PA: W.B. Saunders Company.

Sanders, D.H. (1995). Statistics: A First (5th ed.). New
York, New York, McGraw Hill Publishing

Secretary of the Air Force (1996). Worldwide Aeromedical
Evacuation System. Air Force Instruction 41-301.

Tanker Airlift Control Center. (October, 1999). Flight
Calculator for C-17 and C-141 Aircraft. Retrieved October 26,
1999 from the World Wide Web: <http://tacc.af.mil/>

United States Air Force (1997). Health Enrollment
Assessment Review. United States Printing, HR06. NCS/EM-212985-
1:1514

U.S. Commander in Chief - Pacific (1998). United States Pacific Command Theater Patient Movement Requirements Center Handbook. USCINCPACINST 4652.1K .

Vickery, D.M. & Fries, J.F. (1996). Taking Care of Yourself (6th ed.). Reading Massachusetts, Perseus Books.

TAB B: RESEARCH QUESTIONNAIRE SUMMARY

The following is the basic questionnaire used for interviews with the MTFs, TAMC personnel, TPMRC, TACC and Service Liaisons during due diligence for development of the Pacific Case Management Database and evaluation of the current AES. Interviews completed from August to October 1999.

AIREVAC Questionnaire – Draft Two (Rev'd. – 082499)

Introduction –

- A. CDR John Olsen and Colonel Enzel prn.
- B. Second Year Resident from Baylor, future TPSO Medical Director
- C. GMP will be the AES System and/or the Pacific Case Mgmt System
- D. Idea of the project is to see what is good and bad about the AES system, both anecdotally and by the databases that currently exist. If this gives an adequate idea of the problems – the project will end with a case analysis of current data.
- E. If there is inadequate information – then a new database may be developed seeking input from both the AES personnel and the patients – but the objective is to minimize new data – and analyze what we currently have.
- F. I have contacted you as the first POC in the system – referral prn. o/w ask questions.
- G. Begin with the Overall Objective – To Collect Data on Utilization Patterns and Characteristics of Patient Populations both inside and outside the AES.
- H. Why (Cost benefit Analysis is the Ultimate Question – forcing alternatives):
 - A. AE – Little Cost for transport, but increased cost for time, per diem, etc.
 - B. Non-AES – Increased transport costs, but decreased time, per diem, etc.
 - C. Assess intangibles (lost productivity, travel and per diem costs, etc.)
- I. Ultimate Products with potential benefit:
 - A. Patient Movement Goals – Leading to new policy/guidelines/clinical decision pathways for the AES (Compare to pre-existent AES documents).
 - B. Breakdown of Payments – Leading to unified (central) funding for AES (all services), use of AEA System, efficient use of commercial system, efficiency of Pacific Case Management System.
 - C. Database that is dynamic, building – and ultimately will allow utilization review of the system on a departmental, institutional, regional and theater basis – with the potential for global application.

.....

TAB B: SUMMARY OF ANECDOTAL QUESTIONS

1. Names of Institution's Interviewed –

-Case Managers and Service Liaisons from Tripler Army Medical Center (TAMC), TAMC Defense Medical Regulating Information System (DMRIS) Cell, Theater Patient Movement Regulating Cell (TPMRC), 121st, Osan, Kunsan, Naval Hospital Guam, Andersen AFB, Camp Zama, Yokota, Misawa, Atsugi, Iwakuni, Yokosuka, Kadena, Sasebo, Okinawa and Service Liaisons (USA, USAF, USN, USMC, USCG)

2. Rank/Name of Person Interviewed and Date of Interview

-Case Managers – >90% are dual hatted – PAD, Legal Officers, Managed Care Departments.
-CM Ranks is divided 45% 0-5, 45% 0-4, and 10% 0-3 or below and Civilian Personnel.
-AE Clerks and Service Liaisons – 90% E3-E7, 10% civilian personnel

3. Position/Job title of Person Interviewed

- SAA

4. Phone Number – 100% with reliable phone service

Fax Number – 90% with reliable fax service

E-mail Capability – 95% with reliable Internet capabilities

5. How does a consult come through the system?

- Hand Carry – Provider to AES Staff at local MTF – 100%. Consult Processed by local MTF AE Clerk within 24 hours in almost all cases.
- CHCS and Flight manifest: TAMC and 50% of Service Liaisons.

6. Does patient movement on C-9's within the Pacific Theater work? General to Specific.

- 90 % of the time C-9's work, but when they don't – it causes massive backlogs, juggling of local schedules, rescheduling of consultant appointments, patient inconveniences, and order modifications to reschedule with commercial air travel.
- Emergency care is extremely hard to prepare for (e.g. – when Okinawa uses IM support, they cancel routine appointments for the entire week – while awaiting movement).

7. What data exists for tracking patients inside and outside the MTF system?

- DMRIS – 100% use by all MTFs because input is mandatory for patient movement in AES.

- How many parallel systems exist between the above 22 interviewees? – 18
Two use DMRIS as their primary dB (TPMRC and TAMC DMRIS Cell)
Two share an Access Database (Yokota and Yokosuka)
Eight have their own Excel Databases running parallel to DMRIS
Four have their own Access Databases running parallel to DMRIS
Two maintain a hand-written ledger parallel to DMRIS
Two have no tracking system

7. Continued

- Why are there parallel systems to DMRIS?
 - DMRIS not functional at local level
 - DMRIS has poor reliability
 - DMRIS gives static field (aggregates but does not allow manipulation)
 - Analysis requires download to Excel/upload into statistical software
 - Collects patient level data: good for hands on care, but limited application at population level (which is where UM works for Managed Care)
 - Limited institutional buy-in, limited understanding of system by AE Clerks, Managed Care, UM and CM departments

8. How many ambulatory patients are requiring attendants?

- 33% have categories for tracking medical attendants on their own systems
- 57% have categories for tracking numbers of non-medical attendants on their own systems
- Breakdown is on descriptive statistics (noteworthy point – many that have the ability to track this parameter - don't or do unreliably)

9. Who is being consulted? Where are they going? Discuss by specialty and whether another MTF, TAMC, CONUS or civilian? Is it outside the Case Management process?

- Primary consults go to Orthopedics, General Surgery, Surgical Subspecialties (Neuro.), Cardiology and Special Procedures (MRI, Echoes, Ultrasounds, etc.)
- Estimates of people traveling outside the system range are mostly anecdotal – no firm numbers. Yokosuka, Okinawa and Osan MTFs use local care when it is available (15-35% of all patients who need care not provided at the MTF).
- Most work within some type of Case Management Process – when they enter into the AES – most are coordinated through AE Clerks. When they use local host national capabilities it is coordinated through clinical personnel (local CM, Department of Managed Care, etc.)

10. Who pays for the AE patients?

- Many different methods depending upon service and type of travel (AES vs. commercial). Various payers include (*note - below are anecdotal answers*):
 - Navy:
 - Inpatient – BUMED
 - Outpatient – Command Pays
 - Commercial Travel – Command pays
 - Army:
 - Inpatient –
 - Outpatient – Soldiers paid by USARJAP
 - Non-soldiers paid by MEDDAC
 - Commercial Transport - Unit pays
 - Attendants – Local Hospital Pays

10. Continued

- Air Force: Inpatient – Local hospital funds
Outpatient –
Commercial Transport – Air Force “Funds”

** To cross-check and verify above anecdotes – see *Information Paper*,
PATIENT MOVEMENT – WHO PAYS? MCHK-TPSO, 21 July 1999.

11. How many patients are traveling outside the AES ?(i.e. – as a % of total institutional consults needing care outside of their MTF)

- Estimates are very rough – ranging from 0 to “very many.” One recurrent theme is despite variability of estimates on outgoing flights to consult sites like TAMC and CONUS – the interviewees consistently answer commercial travel back to the duty station ranges from 50-100% across most institutions.

12. Who are the referring specialists?

- Family Practitioners - almost 100% (they are the primary care givers who are stationed in these outlying MTFs).

13. Where are they referring too?

- Outlying Navy Clinics in Japan refer equally to Okinawa and TAMC, most others send to TAMC. Difficult to quantify – some over-fly TAMC (Navy) to San Diego Regional Medical Center, and others do receive consults to civilian organizations.

14. How do you track these payments locally?

- Very few track (3 of 14 MTFs) and their databases are incomplete.

15. Other concerns of the AES, tracking and logistics of patient movement, etc.

- DMRIS is not functional (by category) for UM of patient movement.
- Passports are required for AES patients/attendants transiting Yokota from Guam – delaying departure for routine consults by 2-3 weeks. If orders are not coordinated through AES process, many get stranded in Yokota because of this.
- Outbound passengers arrive at TAMC without orders funded for return. Quickly changes when service Liaisons call with estimates of Hawaii per diem charges.
- Service Liaison at TAMC does not talk to TAMC CM – if patient returns to duty station on commercial and Service Liaison does not inform TAMC CM – TAMC loses ability to track patient.
- Some commands see sending NMA with patient to TAMC on routine flight as a way to reward hard work. Some commands report sending as many as 50% of routine consults to TAMC with a non-medical attendant.
- Inbound - Service Liaisons must receive manifest earlier than 1600 Monday for Tuesday arrivals on the MEDEVAC system.
- Outbound – Service Liaisons must manifest AES patients 72 hours prior to departure. Since this Yokota bound flight leaves on Saturday, this means patient must present to liaison by COB Tuesday. The inbound flight arrives from Yokota on Tuesday – making this impractical from a logistics standpoint. If not manifested – this requires patients to stay in Hawaii (\$171 per diem/day) and has led to the informal “SOP” of returning patients commercially if they will be waiting longer than 3 days for the AES. (i.e. – reasoning is most flights back to WESTPAC range from \$250 - \$450...while 4 days per diem costs \$684.)
- Lack of coordinated local transportation for patients scheduled to take AES.
- Using local medical resources (providers, technicians, medics, nurses) disrupts local scheduling and access standards.

TAB C: AES Data Comparisons Page 1A

[illegible]

TAB C: AES Data Comparisons Page 2A

[illegible]

[illegible]

[illegible]

TAB C: AES Data Comparisons, Page 3A

[illegible]

[illegible]

TAB C: AES Data Comparisons, Page 3B

(Survey Data Instrument)		Access	Access	Access	Ledger	Ledger	None	Word	Access	None	Excel			
Additional Data Points	% Marker	USAF SL	Yokosuka	Kadena	Iwakuni	USMC SL	USA SL	Okinawa	Yokota	Sasebo	Misawa	Atsugi		
<i>Demographics:</i>														
Case Specific ID Identifier	19.0%	1	1	1					1					
Duty Title	0.0%													
DEROS	0.0%													
Home Phone	14.3%		1	1					1					
<i>Clinical Information:</i>														
Last Medical Appointment	0.0%													
Discharge Date	9.5%		1						1					
Vast Clinical Parameters	0.0%													
Local Consult Parameters	9.5%		1						1					
ICD-9 Codes	9.5%		1						1					
CPT Codes	9.5%		1						1					
<i>Support Needed:</i>														
Finance Document No.	9.5%		1						1					
Finance Document Amt.	14.3%		1	1					1					
Finance Savings	0.0%													
Tvl Method of Sp. Attend.	4.8%			1										
Pmt.Method of Sp. Attend.	4.8%			1										
Tvl Method of Non-Sp.	4.8%			1										
Pmt.Method of Non-Sp.	0.0%													
Actual Per Diem	4.8%			1										
Actual Travel	4.8%			1										
Actual Voucher	4.8%			1										
<i>Pt. Movement Information:</i>														
Layover Site (Outgoing)	0.0%													
Time (Origin to Dest.)	4.8%			1										
Consult to Departure Date	0.0%													
Wait time for Departure	4.8%			1										
Layover Site (Return)	0.0%													
Date of Return to Origin	19.0%			1	1	1					1			
Total Days	0.0%													
Entry Date into AES/DMRIS	9.5%			1	1									
Precedence of Movement	9.5%		1						1					
AES (Yes/No)	9.5%		1						1					
Date AES Request Faxed	0.0%													
Pt. Notification Date	9.5%		1						1					
Date of Consult	9.5%		1						1					
Time of Consult	9.5%		1						1					
Orders Number	9.5%		1						1					
Orders Date	9.5%		1						1					
Misc. Remarks	28.6%	1	1	1	1				1		1			



[illegible]



TAB D: *Pacific Case Management Database & Explanations*

DEMOGRAPHICS FIELD (PRIOR TO DEPARTURE) – This Section all Required Fields

1. Case Specific Identifier
 - A. Automatic Register on entry into system

EXPLANATION: No input necessary. This identifier will register automatically when the demographics field is completely filled out.

2. Social Security Number of Patient (or Sponsor if Family Member)
 - A. Social Security Number

EXPLANATION: Self-explanatory.

3. Did you verify the correct social security number is listed in the “Demographics” section?
 - A. Yes
 - B. No

EXPLANATION: This category is a self-explanatory pull down menu. It is meant as a verification check that the social security number was entered into the demographic field correctly.

4. Name of Patient
 - A. Name of Patient (3 box with letter limits; last, first, middle initial)

EXPLANATION: Patient’s last name, first name and middle initial.

5. FMP of Patient
 - A. Categorical Description of Patient

EXPLANATION: Pull down menu, categories are self-explanatory.

6. Is the patient entered in the exceptional family member program?
 - A. Yes
 - B. No

EXPLANATION: Pull down menu, categories are self-explanatory.

7. Beneficiary Category
 - A. Active Duty
 - B. Active Duty Family Members
 - C. Retired
 - D. Retired Family Members
 - E. Veteran’s Administration Employee
 - F. Other DOD Employee
 - G. Host National
 - H. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

8. Name of Sponsor
A. Name of Sponsor (3 box with letter limits; last, first, middle initial)

EXPLANATION: Patient's last name, first name and middle initial.

9. Birthday of Patient
A. Numerical Birth Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

10. Patient Age (Years)
A. 0-1
B. 2-9
C. 10-19
D. 20-29
E. 30-39
F. 40-49
G. 50-59
H. 60-69
I. >70

EXPLANATION: Pull down menu, categories are self-explanatory.

11. Patient Sex
A. Male
B. Female

EXPLANATION: Pull down menu, categories are self-explanatory.

12. Grade/Rank of Patient (or Sponsor if Family Member)
A. E-1
B. E-2
C. E-3
D. E-4
E. E-5
F. E-6
G. E-7
H. E-8
I. E-9
J. CW-1
K. CW-2
L. CW-3
M. CW-4
N. O-1
O. O-2
P. O-3
Q. O-4
R. O-5
S. O-6

- T. O-7
- U. O-8
- V. O-9
- W. O-10
- X. Not Applicable

EXPLANATION: Pull down menu, categories are self-explanatory.

- 13. Branch of Service
 - A. Army
 - B. Navy
 - C. Air Force
 - D. Marine
 - E. Coast Guard
 - F. Veteran's Administration
 - G. Other DOD Employee
 - H. State Department
 - I. Host National
 - J. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

- 14. Patient's Health Coverage
 - A. TRICARE Prime
 - B. TRICARE Standard
 - C. TRICARE Extra
 - D. Federal Employee Health Benefit Plan
 - E. Other Insurance
 - F. No Health Plan Coverage
 - G. Unknown

EXPLANATION: Pull down menu, categories are self-explanatory.

- 15. Patient's Unit at Originating Duty Station (or Sponsor's Unit if Family Member)
 - A. Field in Development (Numbers and Letters of Variable Length)

EXPLANATION: Type in Active Duty Member's Work Area Name and Numerical Designator (i.e. – 374th Air Evacuation Squadron, VMAQ 2 Detachment Zulu, etc.)

- 16. Phone Number for Point of Contact at patient's work place
 - A. Numerical entry (Include box for country code and DSN vs. Commercial)

EXPLANATION: Type in Active Duty Member's Work Area Phone Number

- 17. Patient's Home Phone Number
 - A. Numerical entry (Include box for country code and DSN vs. Commercial)

EXPLANATION: Type in Active Duty Member's Home Phone Number

ENCOUNTER DATA FORM

1. Case manager/Service Liaison's Name

- A. Name of Case Manager (4 box with letter limits; last, first, middle initial, rank)

EXPLANATION: Case Manager's last name, first name and middle initial.

2. Time/Date of Encounter with case manager

- A. Numerical Time/Date (24-Hour Time/Month/Day/Year: xxxx/XX/XX/XXXX)

EXPLANATION: Local time in twenty-four hour time scale, two date designation for month and day, and four digit for year. (i.e. – May 3, 2000 at 210 p.m. is 1410/05/03/2000)

3. Location of Encounter with Case Manager listed above.

- A. Andersen AFB– Guam
- B. US Naval Hospital - Guam
- C. 51st MDG Osan
- D. 8th MDG Kunsan
- A. 121st GH Korea
- B. Camp Zama
- C. 35MDG Misawa
- D. 374th MDG Yokota
- E. USNH Yokosuka
- F. BMC Iwakuni
- G. BMC Atsugi
- H. BMC Sasebo
- I. USNH Okinawa
- J. 18th MDG Kadena
- K. WESTPAC Remote
- L. Other Operational Setting
- M. Tripler Army Medical Center
- N. Other International Civilian Medical Center
- O. Other Continental United States Civilian Medical Center
- P. Other Continental United States Military Medical Center
- Q. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

CLINICAL INFORMATION (PRIOR TO DEPARTURE)

1. Referring Medical Treatment Facility
 - A. Andersen AFB– Guam
 - B. US Naval Hospital - Guam
 - C. 51st MDG Osan
 - D. 8th MDG Kunsan
 - E. 121st GH Korea
 - F. Camp Zama
 - G. 35MDG Misawa
 - H. 374th MDG Yokota
 - I. USNH Yokosuka
 - J. BMC Iwakuni
 - K. BMC Atsugi
 - L. BMC Sasebo
 - M. USNH Okinawa
 - N. 18th MDG Kadena
 - O. WESTPAC Remote
 - P. Other Operational Setting
 - Q. Tripler Army Medical Center
 - R. Other International Civilian Medical Center
 - S. Other Continental United States Civilian Medical Center
 - T. Other Continental United States Military Medical Center
 - U. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

2. Referring Service (Service requesting consult)
 - A. Behavioral Health Services
 - B. Cardiology and Cardiac Surgery
 - C. Dermatology
 - D. Primary Care
 - E. Gastroenterology (GI)
 - F. General Surgery
 - G. Gynecology
 - H. Internal Medicine
 - I. Neurology and Neurosurgery
 - J. Obstetrics
 - K. Ophthalmology
 - L. Orthopedics
 - M. Pediatrics
 - N. Substance Abuse
 - O. Urology and Nephrology
 - P. Dental
 - Q. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

3. Accepting Medical Treatment Facility
 - A. Andersen AFB– Guam
 - B. US Naval Hospital – Guam

- C. 51st MDG Osan
- D. 8th MDG Kunsan
- E. 121st GH Korea
- F. Camp Zama
- G. 35MDG Misawa
- H. 374th MDG Yokota
- I. USNH Yokosuka
- J. BMC Iwakuni
- K. BMC Atsugi
- L. BMC Sasebo
- M. USNH Okinawa
- N. 18th MDG Kadena
- O. WESTPAC Remote
- P. Other Operational Setting
- Q. Tripler Army Medical Center
- R. Other International Civilian Medical Center
- S. Other Continental United States Civilian Medical Center
- T. Other Continental United States Military Medical Center
- U. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

- 4. Accepting Service (Service accepting consult)
 - A. Behavioral Health Services
 - B. Cardiology and Cardiac Surgery
 - C. Dermatology
 - D. Primary Care
 - E. Gastroenterology (GI)
 - F. General Surgery
 - G. Gynecology
 - H. Internal Medicine
 - I. Neurology and Neurosurgery
 - J. Obstetrics
 - K. Ophthalmology
 - L. Orthopedics
 - M. Pediatrics
 - N. Substance Abuse
 - O. Urology and Nephrology
 - P. Dental
 - Q. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

- 5. Time/Date Scheduled to be seen by Accepting Service
 - A. Numerical Time/Date (24-Hour Time/Month/Day/Year: xxxx/XX/XX/XXXX)

EXPLANATION: Local time in twenty-four hour time scale, two date designation for month and day, and four digit for year. (i.e. – May 3, 2000 at 210 p.m. is 1410/05/03/2000)

6. Reason for Consultation
 - A. Diagnostic Studies
 - B. Treatment
 - C. Diagnosis and Treatment
 - D. Second Opinion on Diagnosis and Treatment
 - E. Ongoing Treatment
 - F. Medical Board
 - G. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

7. (Presumed) Physical Status of Patient upon arrival at Site of Consultation
 - A. Inpatient – Ambulatory
 - B. Inpatient – Wheelchair
 - C. Inpatient – Litter
 - D. Outpatient – Ambulatory
 - E. Outpatient – Wheelchair
 - F. Outpatient – Litter

EXPLANATION: Pull down menu, categories are self-explanatory.

8. Number of Medical Attendants
 - A. 0
 - B. 1
 - C. 2
 - D. Greater than 3

EXPLANATION: Pull down menu, categories are self-explanatory.

9. Number of Non-Medical Attendants
 - A. 0
 - B. 1
 - C. 2
 - D. Greater than 3

EXPLANATION: Pull down menu, categories are self-explanatory.

10. Clinical History
Answer will be a block for Narrative input (Limit to five lines??)

EXPLANATION: This field permits a brief narrative clinical history.

SUPPORT NEEDED (PRIOR TO DEPARTURE)

1. Travel Method of Medical Attendants for patient
 - A. AE System – accompanying patient
 - B. AE System – not accompanying patient
 - C. Commercial Air – accompanying patient
 - D. Commercial Air – not accompanying patient
 - E. Ground Transport
 - F. Water Transport
 - G. Other Transport
 - H. Does Not Apply – no medical attendants sent with patient

EXPLANATION: Pull down menu, categories are self-explanatory.

2. Travel Method of Non-Medical Attendants
 - A. AE System – accompanying patient
 - B. AE System – not accompanying patient
 - C. Commercial Air – accompanying patient
 - D. Commercial Air – not accompanying patient
 - E. Ground Transport
 - F. Water Transport
 - G. Other Transport
 - H. Does Not Apply – no non-medical attendants sent with patient

EXPLANATION: Pull down menu, categories are self-explanatory.

3. Lodging for Patient at site of Consult
 - A. Hotel
 - B. Family
 - C. Friends
 - D. Inpatient
 - E. BOQ
 - F. BEQ
 - G. Transient Personnel Unit/Medical Hold or Equivalent
 - H. Other Government Housing

EXPLANATION: Pull down menu, categories are self-explanatory.

4. Orders funded for Return Flight
 - A. Yes
 - B. No

EXPLANATION: Pull down menu, categories are self-explanatory.

5. Specific Remarks for Lodging Location and Local Phone Number.

EXPLANATION: This field permits listing of local accommodations, local family, friends or other local points of contact.

PATIENT MOVEMENT INFORMATION (PRIOR TO DEPARTURE)

1. Date Consult written by provider at referring MTF
 - A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

2. Date Air Evacuation System Request sent for patient movement
 - A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

3. Date of First Air Evacuation System Flight
 - A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

4. Patient must be airborne and enroute within what period of time?
 - A. Less than 12 hours
 - B. From 12 to 24 hours
 - C. From 24 to 72 hours
 - D. Within 3 to 7 days
 - E. Greater than 7 days

EXPLANATION: This is the period within which the patient must be moving from the point of consult to the next echelon of care and/or definitive care setting.

5. Specific Remarks on Patient Movement.

EXPLANATION: This is a narrative field permitting a listing of flight numbers, departure and arrival times, etc.

CHECK IN WITH SERVICE LIAISON/TAMC STAFF (ON ARRIVAL AND PRIOR TO APPOINTMENT)

1. Date of Actual Flight Departure Carrying Patient to Hawaii or Consult Site
 - A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

2. Reason if Departure or Enroute Delay
 - A. Not applicable – Patient took first AES flight at Origin
 - B. Appointment not available at consult destination
 - C. Command would not release patient until later date
 - D. Patient delays for personal reasons
 - E. Consult cancelled
 - F. Mechanical Problems of Aircraft
 - G. Weather Delays
 - H. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

3. Type of Military or Commercial Flight
 - A. AES Routine Flight
 - B. Non – AES Military Mission
 - C. Scheduled Commercial Carrier
 - D. Special Commercial Charter
 - E. Other

EXPLANATION: Pull down menu, categories are self-explanatory.

4. Arrival Date in Hawaii or Consult Site
 - A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

5. Did patient check in with Service Liaison/TAMC Staff before appointment
 - A. Yes - within 24 hours of arrival)
 - B. Yes - from 25-48 hours after arrival)
 - C. Yes - from 49-96 hours after arrival)
 - D. Yes - greater than 97 hours arrival)
 - E. No – Patient did not check in with Service Liaison/TAMC staff before appointment

EXPLANATION: Pull down menu, categories are self-explanatory

6. Reason patient did not check in with Service Liaison/TAMC Staff within 24 hours
 - A. Not applicable, patient did check in within 24 hours of arrival
 - B. Arriving Patient not Informed of check in procedures prior to departure
 - C. Extreme flight fatigue
 - D. Other

EXPLANATION: Pull down menu, categories are self-explanatory

7. Patient Specifics during the stay at the consult site.

EXPLANATION: This is a narrative field permitting a listing of local lodging, phone numbers, appointment changes while at the consult site. It is also for discharge planning and tentative departure dates, etc.

PATIENT MOVEMENT INFORMATION (AFTER APPOINTMENT)

1. Check in Date with Service Liaison/TAMC Staff for return flight planning
A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

2. Date Air Evacuation System Request sent for return flight to WESTPAC
A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

3. Date of first Air Evacuation System Flight
A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

4. Date Scheduled for Departure on Aircraft returning to WESTPAC
A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

5. Specific Remarks on Patient's return to Duty Station.

EXPLANATION: This is a narrative field permitting a listing of flight numbers, departure and arrival times and dates, etc.

ENDING TRAVEL AND FINANCIAL DATA (AT CLOSE OF TRAVEL ORDERS)

1. Actual Flight Departure Date Carrying Patient from Hawaii or Consult Site to WESTPAC
 - A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

2. Reason if Departure or Enroute Delay
 - A. Not applicable – Patient took first AES flight at Origin
 - B. AES flight does not depart on schedule
 - C. Patient delayed for medical reasons
 - D. Mechanical Problems of Aircraft
 - E. Weather Delays
 - F. Other

EXPLANATION: Pull down menu, categories are self-explanatory

3. Type of Military or Commercial Flight from Hawaii or Consult Site to WESTPAC
 - A. AES Regulated Flight
 - B. Space Available
 - C. Scheduled Commercial Carrier
 - D. Other

EXPLANATION: Pull down menu, categories are self-explanatory

4. Final Arrival Date at Duty Station
 - A. Numerical Date (Month/Day/Year: XX/XX/XXXX)

EXPLANATION: Two-digit designation for month and day, four digits for year. (i.e. – November 13, 2000 is designated 11/13/2000)

5. When did patient close out travel orders with MTF staff
 - A. Within 48 hours of return to duty station
 - B. From 48-96 hours after return to duty station
 - C. Greater than 96 hours after return to duty station

EXPLANATION: Pull down menu, categories are self-explanatory

6. Total Days of Consult Process (Depart Duty Station to Return to Duty Station)
 - A. 0-5
 - B. 6-10
 - C. 11-15
 - D. 16-20
 - E. 21-25
 - F. 26-30
 - G. 31-35
 - H. 36-40
 - I. Greater than 41

EXPLANATION: Pull down menu, categories are self-explanatory

7. Total cost of Per Diem while away from Duty Station
 - A. Five Boxes: Digits 0-9 (Ten Thousands, Thousands, Hundreds, Tens, Ones)

EXPLANATION: Pull down menu, categories are self-explanatory

8. Total cost for Travel (round-trip)
 - A. Five Boxes: Digits 0-9 (Ten Thousands, Thousands, Hundreds, Tens, Ones)

EXPLANATION: Pull down menu, categories are self-explanatory

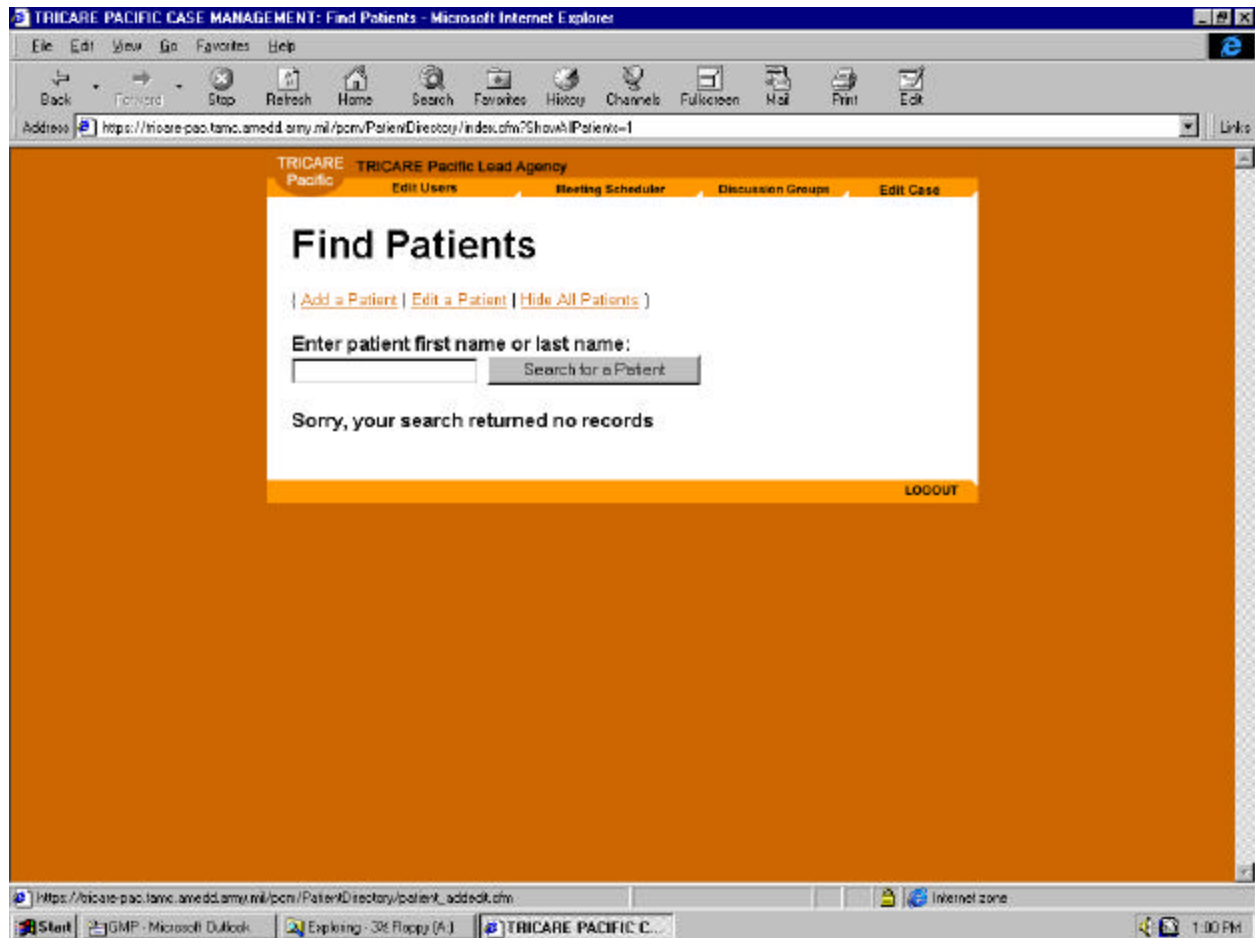
9. Total Payment against Travel Orders
 - A. Five Boxes: Digits 0-9 (Ten Thousands, Thousands, Hundreds, Tens, Ones)

EXPLANATION: Pull down menu, categories are self-explanatory

10. General Miscellaneous Remarks at the Close out of Travel Orders

EXPLANATION: This is a narrative field permitting a discussion of any variable at the close of orders (i.e. – accounting data, order modifications used during the patient’s travel, etc.)

TAB E, Page 1 of Web Site



TAB E, Page 2 of Web Site (First Screen)

TRICARE PACIFIC CASE MANAGEMENT: Add Patient - Microsoft Internet Explorer

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address https://tricare.pac.tamc.amedd.army.mil/pcm/PatientDirectory/patient_added.cfm Links

TRICARE Pacific TRICARE Pacific Lead Agency

Edit Users Meeting Scheduler Discussion Groups Edit Case

Add Patient

[Patient Search](#) | [Edit a Patient](#) | [Show All Patients](#) |

Demographics

Sponsor's Social Security Number (no dashes, ie, 123121234)

Verify Sponsor's Social Security Number

Patient's Last Name:

Patient's First Name:

Patient's Middle Name:

FMP of Patient:

Exceptional Family Member Program:

Beneficiary Category:

Sponsor's Last Name:

Sponsor's First Name:

Sponsor's Middle Name:

Patient's Birthdate:

Patient's Age:

Start Inbox - Microsoft Outlook Exploring - BAYLOR_PAP... TRICARE PACIFIC C... Microsoft Word - TAB C_P

Internet zone

1:29 PM

Tab E, Page 2 of Web Site (Scrolling Continued)

TRICARE PACIFIC CASE MANAGEMENT: Add Patient - Microsoft Internet Explorer

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address https://tricare.pac.tamc.amedd.army.mil/pcm/PatientDirectory/patient_added.cfm Links

Patient's Age:

Patient's Sex:

Patient's Grade/Rank:

Branch of Service:

Patient's Health Coverage:

Patient's Unit at Originating Duty Station
(or Sponsor's Unit if Family Member):

Phone number for POC at Patient's Work
Place (DSN):

Phone number for POC at Patient's Work
Place (commercial):

Patient's Home Phone Number (DSN):

Patient's Home Phone Number
(commercial):

Encounter Data Form

Case Manager - Last Name

Case Manager - First Name

Case Manager - Middle Name

Case Manager - Rank

Time of Encounter

Date of Encounter

Location of Encounter

Start | Inbox - Microsoft Outlook | Exploring - BAYLOR_PAP... | TRICARE PACIFIC C... | Microsoft Word - TAB C_P... | Internet zone | 1:30 PM

Tab E, Page 2 of Web Site (Scrolling Continued)

TRICARE PACIFIC CASE MANAGEMENT: Add Patient - Microsoft Internet Explorer

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address https://tricare.pac.tamc.amedd.army.mil/pcm/PatientDirectory/patient_added.cfm Links

Location of Encounter

Clinical Information - Prior to Departure

Referring MTF

Referring Service

Accepting MTF

Accepting Service

Time scheduled to be seen by accepting service

Date scheduled to be seen by accepting service

Reason for consultation

(Presumed) Physical Status of Patient Upon Arrival at Site of Consultation

Number of Medical Attendants

Number of Non-Medical Attendants

Clinical History (narrative input)

Start Inboxes - Microsoft Outlook Exploring - BAYLOR_PAP... TRICARE PACIFIC C... Microsoft Word - TAB C_P... 1:30 PM

Tab E, Page 2 of Web Site (Scrolling Continued)

TRICARE PACIFIC CASE MANAGEMENT: Add Patient - Microsoft Internet Explorer

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address https://tricare.pac.hq.mccd.army.mil/pcm/PatientDirectory/patient_added.cfm Links

Support Needed - Prior to Departure

Travel Method of Medical Attendants:

Travel Method of Non-Medical Attendants:

Lodging for Patient at Site of Consult:

Orders funded for Return Flight

Specific Remarks for Lodging Location and Local Phone Number

Patient Movement Info - Prior to Departure

Date Consult Written by Provider at Referring MTF:

Date AES Request Sent

Date of First AES Flight:

Airborne and Enroute Within:

Start Inboxes - Microsoft Outlook Exploring - BAYLOR_PAP... TRICARE PACIFIC C... Microsoft Word - TAB C_P... 1:31 PM

Tab E, Page 2 of Web Site (Scrolling Continued)

TRICARE PACIFIC CASE MANAGEMENT: Add Patient - Microsoft Internet Explorer

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address https://tricare.pac.tamc.amedd.army.mil/pom/PatientDirectory/patient_added.cfm Links

Airborne and Enroute Within:

Specific Remarks on Patient Movement

Check-In on Arrival - Prior to Appointment

Date of Actual Flight Departure Carrying Patient to Hawaii or Consult Site

Reason if Departure or Enroute Delay

Type of Military or Commercial Flight

Arrival Date in Hawaii or Consult Site

Did Patient Check with Service Liaison / TAMC Staff Before Appointment

Reason Patient Did Not Check In Within 24 Hours

Patient Specifics During the Stay at the Consult Site:

Start | Inbox - Microsoft Outlook | Exploring - BAYLOR_PAP... | TRICARE PACIFIC C... | Microsoft Word - TAB_C_P... | Internet zone | 1:32 PM

Tab E, Page 2 of Web Site (Scrolling Continued)

TRICARE PACIFIC CASE MANAGEMENT: Add Patient - Microsoft Internet Explorer

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address https://tricare.pac.tamc.amedd.army.mil/pcm/PatientDirectory/patient_added.cfm Links

Patient Movement Info - After Appointment

Check in Date with Service Liaison / TAMC Staff for Return Flight Planning

Date Air Evacuation System Request Sent For Return Flight to WESTPAC

Date of First Air Evacuation System Flight

Date Scheduled for Departure on Aircraft Returning to WESTPAC

Specific Remarks on Patient's Return to Duty Station

Ending Travel and Financial Data at Close of Travel Orders

Actual Flight Departure Date Carrying Patient from Consult Site to WESTPAC

Reason if Departure or Enroute Delay

Type of Military or Commercial Flight from Consult Site to WESTPAC

Final Arrival Date at Duty Station

Start Inbas - Microsoft Outlook Exploring - BAYLOR_PAP... TRICARE PACIFIC C... Microsoft Word - TAB C_P... 1:33 PM

Tab E, Page 2 of Web Site (Final Screen)

TRICARE PACIFIC CASE MANAGEMENT: Add Patient - Microsoft Internet Explorer

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address https://tricare.pac.hmc.amedd.army.mil/pcm/PatientDirectory/patient_added.cfm Links

Reason if Departure or Enroute Delay

Type of Military or Commercial Flight from Consult Site to WESTPAC

Final Arrival Date at Duty Station

When Did Patient Close Out Travel Orders with MTF Staff:

Total Days of Consult Process (Depart Duty Station to Return to Duty Station)

Total Cost of Per Diem While Away from Duty Station:

Total Cost for Travel (round-trip)

Total Payment Against Travel Orders

General Miscellaneous Remarks at the Close Out Of Travel Orders

LOGOUT

Start Inboxes - Microsoft Outlook Exploring - BAYLOR_PAP... TRICARE PACIFIC C... Microsoft Word - TAB C_P 1:33 PM

Financial (Dollar) Costs - Routine Ambulatory Outpatient Consults Only

[illegible]

PATIENT MOVEMENT GIVENS AND WORKSHEET

KEY:									
1.	All spreadsheet cells on this page are linked to the gray box under "Equation Variables," allowing the analysis of any Grade/Ranks listed above.								
2.	Deltas are costs (dollars, hours and days as noted) of Commercial Transport minus the AES. Parentheses are negative numbers. Negative numbers signify the additional cost of using the AES for patient transport (in dollars, hours and days).								

TABLE 4 - ANNUALIZED THEATER-WIDE PATIENT TRAVEL COSTS
PATIENT MOVEMENT WORKSHEET

		<u>4th Qtr. 1999 Statistics ¹</u>			<u>Annualized Statistics - One Way ²</u>					
<u>Origin</u>	<u>Destination</u>	<u>Patients</u>	<u>Rank Mode</u>	<u>% Total</u>	<u>Patients</u>	<u>Rank Mode</u>	<u>Cost/Person</u>	<u>Day/Person</u>	<u>Cost Delta</u>	<u>Day Delta</u>
Yokota	Hawaii	122	E-4	39%	488	E-4	(414)	0.0	(202,032)	0
Okinawa	Hawaii	82	E-5	26%	328	E-5	(1,083)	(1.0)	(355,224)	(328)
Korea	Hawaii	42	E-5	14%	168	E-5	(1,094)	(1.0)	(183,792)	(168)
Guam	Hawaii	65	E-4	21%	260	E-4	(840)	(0.8)	(218,400)	(208)
Totals		311		100%	1244				(959,448)	(704)

<u>Origin</u>	<u>Destination</u>	<u>Patients</u>	<u>Rank Mode</u>	<u>% Total</u>	<u>Patients</u>	<u>Rank Mode</u>	<u>Cost/Person</u>	<u>Day/Person</u>	<u>Cost Delta</u>	<u>Day Delta</u>
Hawaii	Yokota	29	E-4	29%	116	E-4	(1,247)	(3.5)	(144,652)	(406)
Hawaii	Okinawa	20	E-5	20%	80	E-5	(1,956)	(4.1)	(156,480)	(328)
Hawaii	Korea	20	E-5	20%	80	E-5	(1,966)	(3.8)	(157,280)	(304)
Hawaii	Guam	30	E-4	30%	120	E-4	(2,127)	(5.1)	(255,240)	(612)
Totals		99		100%	396				(713,652)	(1,650)

<u>Total Deltas - Round Trip Travel</u>			<u>Cost (\$)</u>	<u>Time (Days)</u>
Japan	Honolulu	Japan	(\$346,684)	(406.0)
Okinawa	Honolulu	Okinawa	(\$511,704)	(656.0)
Korea	Honolulu	Korea	(\$341,072)	(472.0)
Guam	Honolulu	Guam	(\$473,640)	(820.0)
Total FY99			(\$1,673,100)	(2,354)

Footnotes

1. Email Correspondence - Major Randall Emmert, TPMRC, 11-15-99. *Rank Mode* is the most common rank travelling from each respective site. Note -the most frequent patient travelers from Japan, Guam and Okinawa are non-active duty. The ranks listed for those origins are second most frequent patient travelers.
2. Deltas are costs (dollars and days as noted) of Commercial Transport minus the AES. Parentheses are negative numbers. *Negative numbers signify the additional cost of using the AES for patient transport* (in dollars and days).

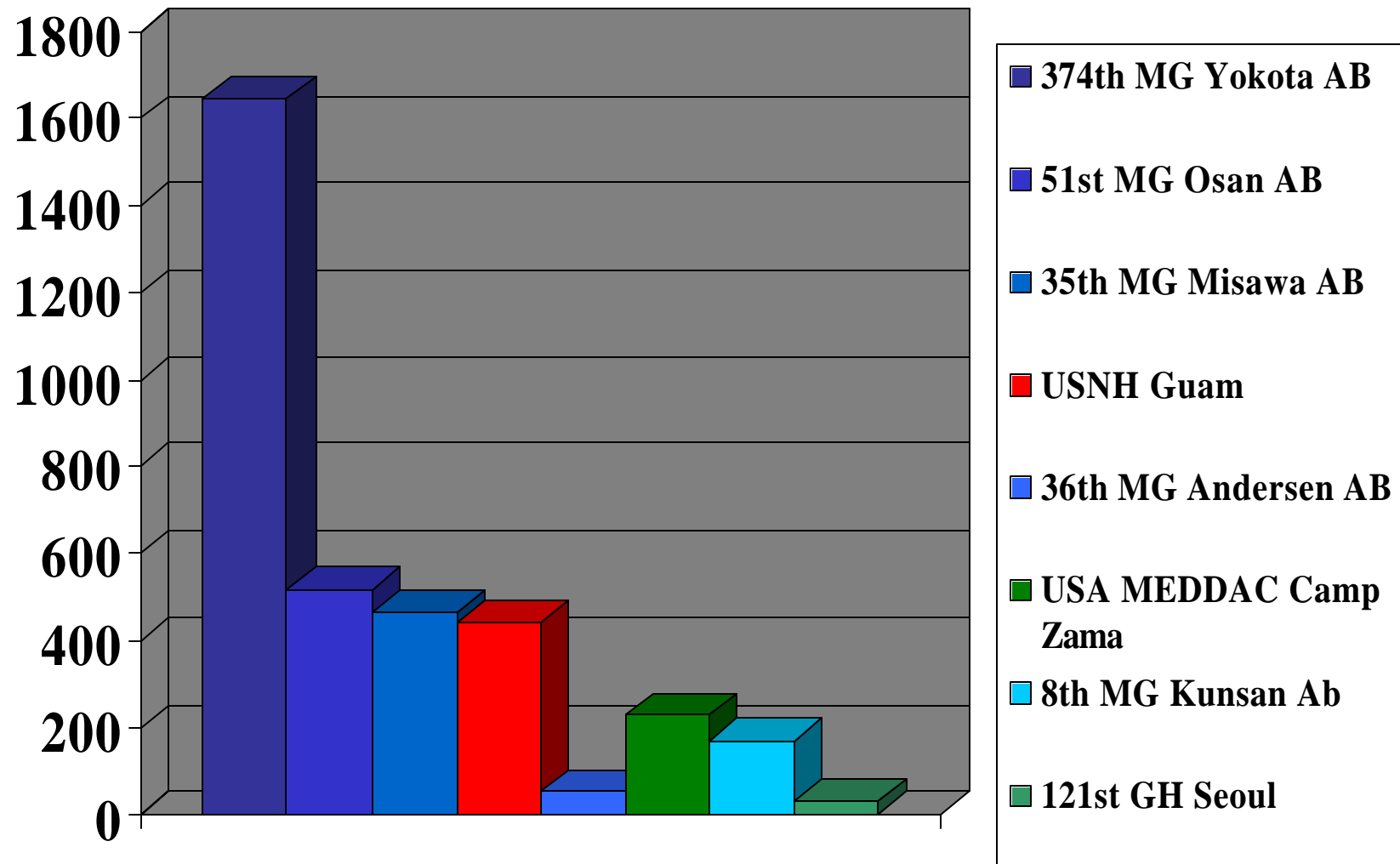


Figure 1. Referring Medical Facility

*** Information Collected 1 Oct 98 to 30 Jun 99**

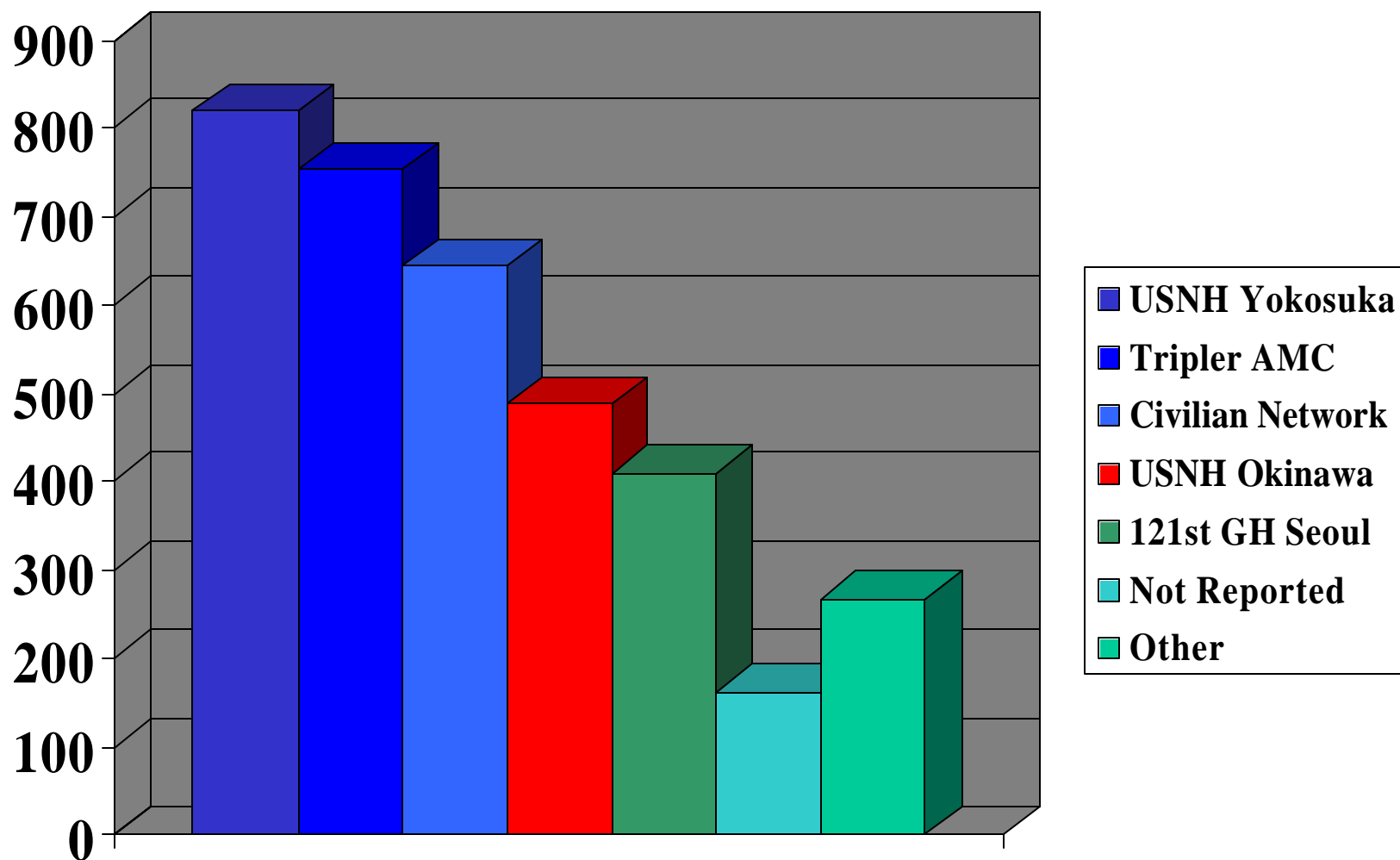
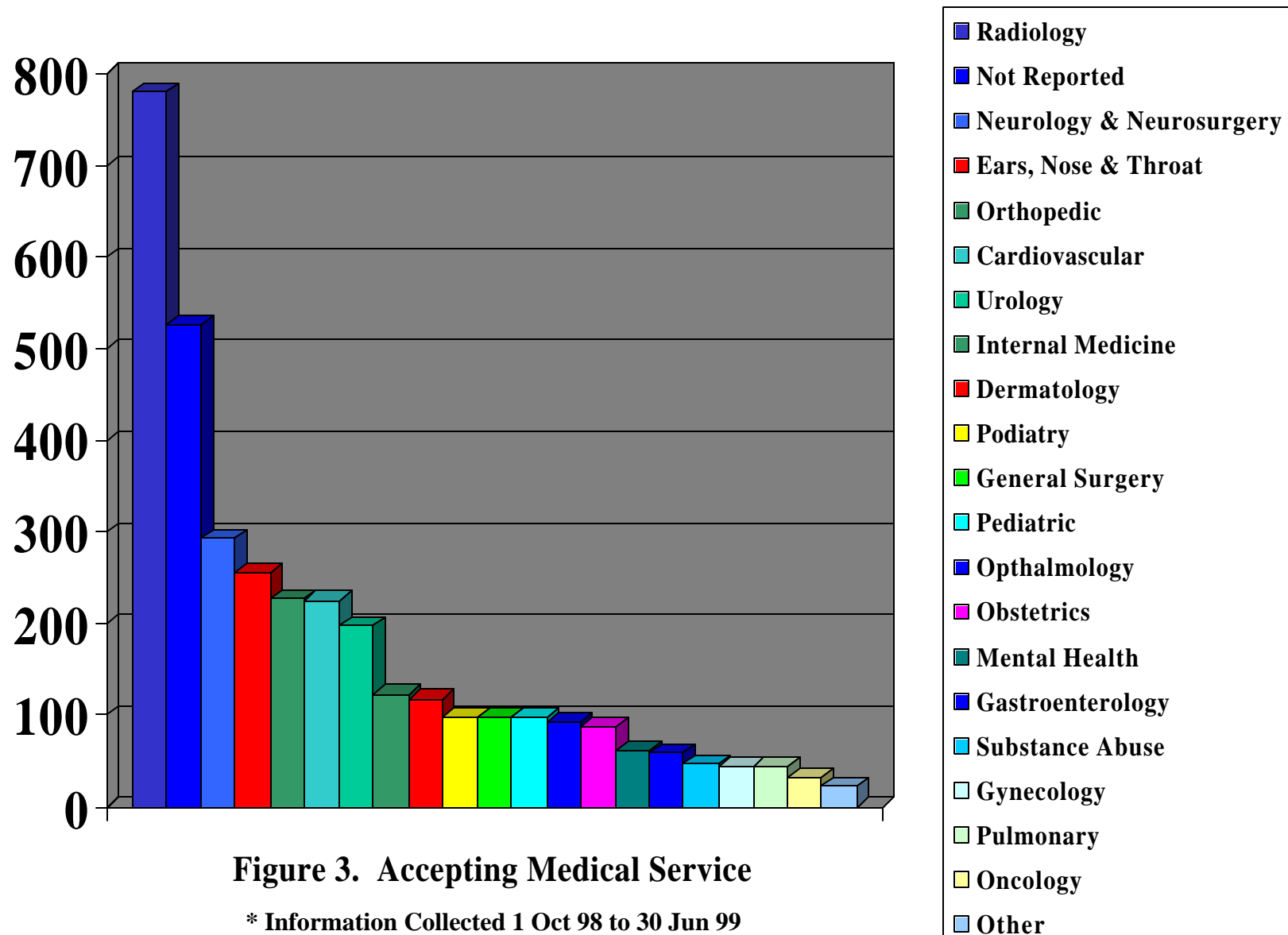


Figure 2. Accepting Medical Facility

*** Information Collected 1 Oct 98 to 30 Jun 99**



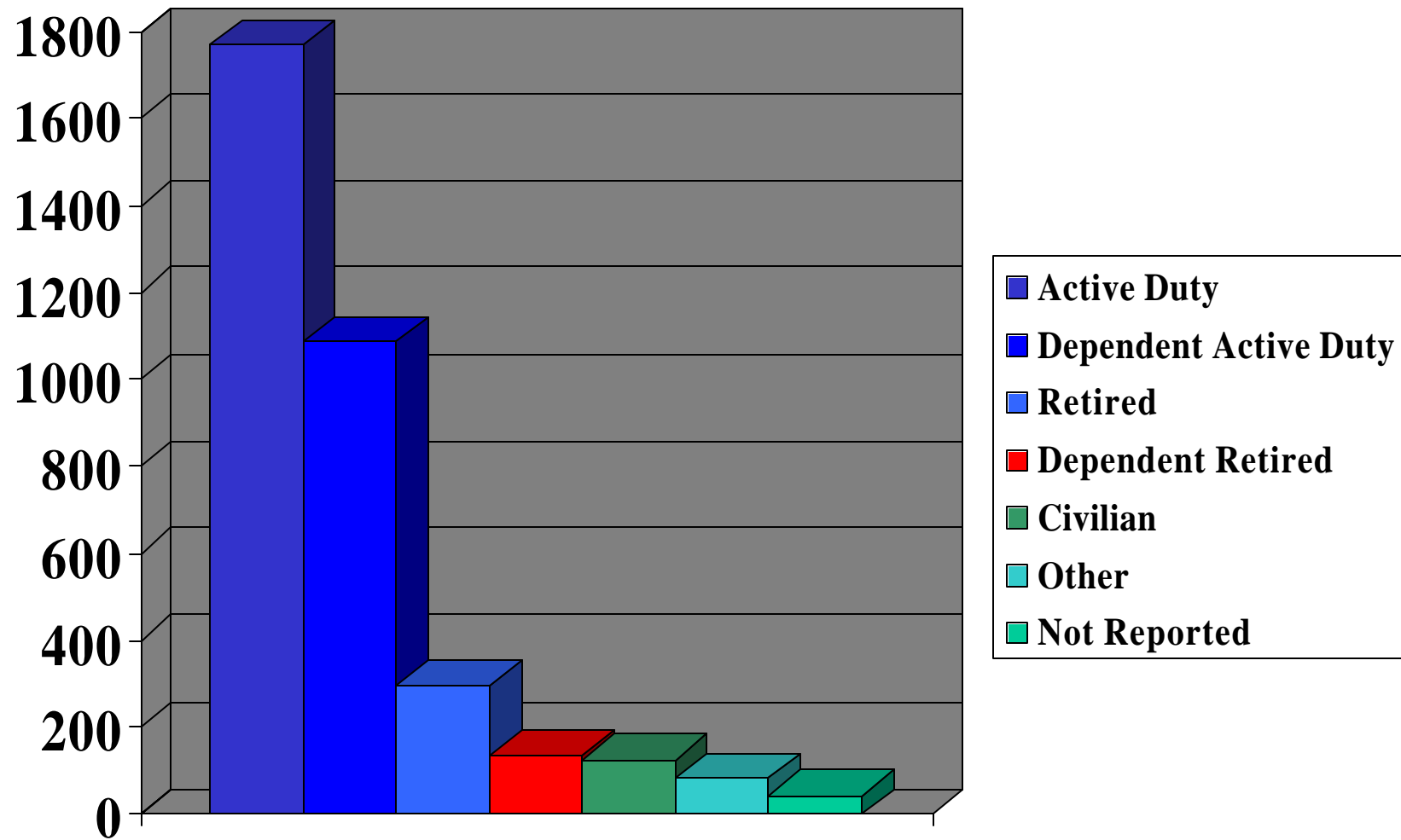


Figure 4. Beneficiary Category of Patient

*** Information Collected 1 Oct 98 to 30 Jun 99**